INPUT® *presents*

ELECTRONIC DATA INTERCHANGE (EDI) INTERTRENDS CONFERENCE

July 28-29, 1988 • Mark Hopkins Hotel • San Francisco, CA

INPUT®

Headquarters 1280 Villa Street, Mountain View, CA 94041, (415) 961-3300
New York Parsippany Place Corp. Center, Ste. 201, 959 Route 46 East, Parsippany, NJ 07054, (201) 299-6999
Washington, D. C. 8298 C, Old Courthouse Rd., Vienna, VA 22180, (703) 847-6870
Europe 41 Dover Street, London WiX 3RB, England, 01-493-9335

ELECTRONIC DATA INTERCHANGE INTERTRENDS CONFERENCE

San Francisco, California • July 28-29, 1988

CONFERENCE AGENDA

Thursday, July 28, DAY 1

7:30-8:30AM *REGISTRATION AND CONTINENTAL BREAKFAST*

8:30 *WELCOME*

8:45 EDI SERVICES AND SOFTWARE INTERTRENDS: Presented by Victor S. Wheatman, EDI Planning Services Manager, INPUT. User concerns, vendor strategies, market shares, market forecasts, and future directions in EDI: Graphics, internetworking, integration, internationalization.

9:45 *INTERMISSION*

10:00 DEC and IBM—EDI STYLE: As the conference highlight, these two titans of the information age will describe their own use of EDI, and their market strategies from multiple perspectives: software integration, computer equipment networking, network services, professional services, international EDI. Presenters: Bruce Jackson, Manager, Interorganizations Systems/EDI Marketing, IBM Information Network; and Bill Carlisle, EDI Electronic Business Document Services Marketing Manager, Digital Equipment Corporation.

11:00 REAL-LIFE USER CASE STUDIES: Leading users in electronics, scientific instruments, and petrochemicals discuss problems met and addressed, vendor selection criteria, integration directions, and more. Presenters: Donald Zink, Systems Product Manager, VWR Scientific; Bruce Alexander, EDI Project Manager, Advanced Micro Devices; Marty Goldberg, Senior Systems Analyst, Planning/Technical Department, Chevron Information Technologies Company.

12:30 *LUNCH*

1:45PM RETAIL EDI: Kathy Spangenberg, Systems Programmer, Mervyn's, discusses her company's EDI experiences, the reasons for implementation, and the lessons learned that may be applicable in other industries. Marketing Prof. Dale Achabal, Manager of the Retail Management Institute at the University of Santa Clara, discusses the findings of his research on the industry.

2:45 *INTERMISSION*

3:00 GLOBAL EDI AND THE X.400 STANDARD: INPUT Principal Consultant Alex Graham presents and updates the findings of INPUT's study on International EDI, and discusses the role the X.400 message-handling standard may come to play in EDI.

5:00 *WINE AND CHEESE RECEPTION; DEPARTURE TO YACHT CRUISE.*

SPECIAL EVENING EVENT: *SAN FRANCISCO BAY DINNER CRUISE* aboard a magnificent yacht. Last year's cruise was called "transcendental." Enjoy the informal, wind-swept atmosphere, gourmet food and an open bar while networking with your peers in one of the world's most beautiful settings.

Friday, July 29th, DAY 2

8:00AM *CONTINENTAL BREAKFAST*

8:30 EDI SERVICES ROUNDTABLE—NETWORK INTERTRENDS: An interactive session with competitors answering hard questions on internetworking, global support, integration support services, etc. Sue Cole (GEIS), Dave Hough (McDonnell Douglas), William Plumb (Sterling Software), Harry Gaples (Kleinschmidt), Beth Greenwood (First National Bank of Chicago).

10:00 *INTERMISSION*

10:15 LATE TO THE PARTY OR JUST IN TIME? New service entrants discuss their strategies for offering needed user services and features in an increasingly crowded marketplace. Do they have "a better idea"? Presenters: Michael Mansouri (Telenet), Beth Sibbring (CompuServe), Marty Weiss (Western Union), and Don Holtz (ADP).

11:30 INSURANCE INTERFACE EDI: with Bob Barham, President, Insurance Value-Added Network Services (IVANS). There's been a bit of activity regarding the IIR/ACORD format for standardized electronic insurance interchange. Barham will report on the issues involved, possible links between "mainline EDI" and Interface EDI, and the role of IVANS.

12:30 *LUNCH*

1:45PM SOFTWARE PROVIDER ROUNDTABLE—WHAT'S NEW AND DIFFERENT? Leaders and innovators in EDI translation software address conference themes: Carl Drisko, Interchange Systems Inc.; Frank Buchheit, MSA; Jim Bert, ACS Network Systems; Ted Annis, Supply-Tech; Hank Lavery, TranSettlements.

3:00 *INTERMISSION*

3:15 FEDERAL GOVERNMENT EDI INTERTRENDS: Presenting and updating the findings of INPUT's market study on EDI projects and potentials in the federal marketplace. Jim Kerrigan, Director, Federal Information Systems and Services Program, INPUT's Washington, D.C. Office.

4:00 CONFERENCE WRAPUP

EDI SERVICES AND SOFTWARE INTERTRENDS

Victor S. Wheatman
EDI Planning Services Manager
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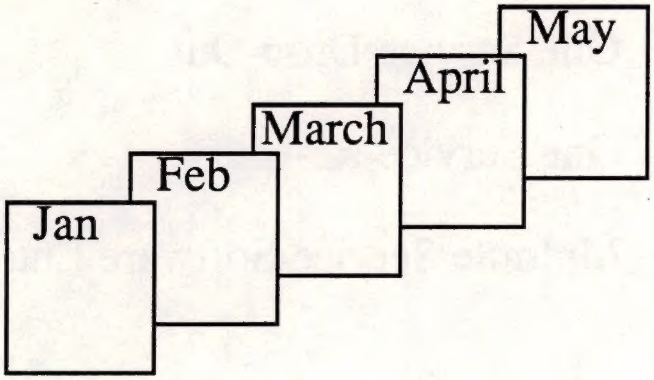
EDI—The Year Past



Jan

Feb

March

April

May

INPUT

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EDI—The Year Past

- One Service Drop-Out
- One Service Re-Entry
- Multiple Service/Software Entries

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The Year Past

Service Entries

- AT & T
- Compuserve
- Martin Marietta
- Western Union

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The Year Past

Software Entries

The "Majors": ASK, Pansophic, M+D Join MSA

The "Minors": Too Many to Mention

Missing: Apple Software

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EDI—The Year Past

Observations

EDI as Religion

"Missionary Sell"

Dedicated Volunteers

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EDI Intertrends

- Integration
- Internetworking
- Internationalization

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Electronic Data Interchange

The Application-to-Application Exchange of Intercompany Business Data in Standard Formats

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Varieties of EDI

Mainline -	Purchasing Logistics EFT + Data
EMCS/ECS -	Medical Claims
Interface -	Insurance

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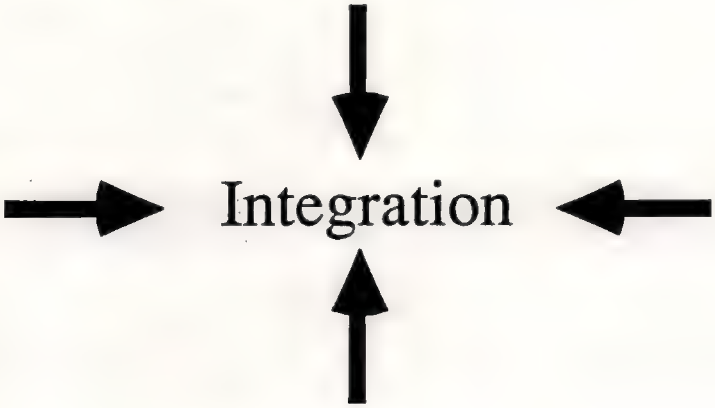
EDI Intertrends #1



Integration

INPUT

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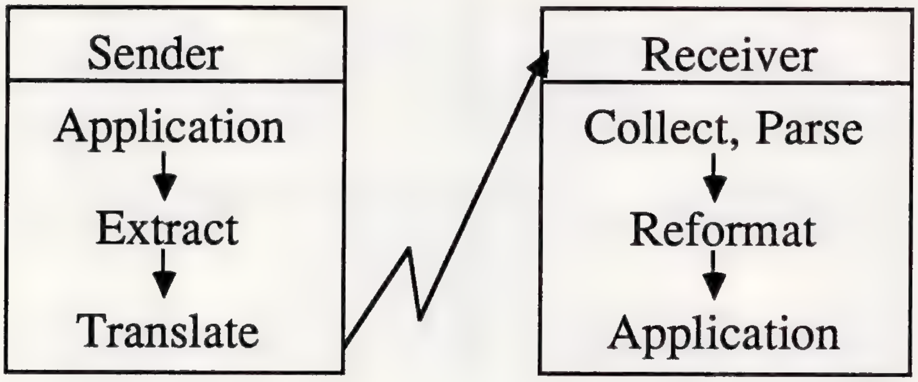
EDI/Application Integration



Sender

Application

↓

Extract

↓

Translate

Receiver

Collect, Parse

↓

Reformat

↓

Application

INPUT

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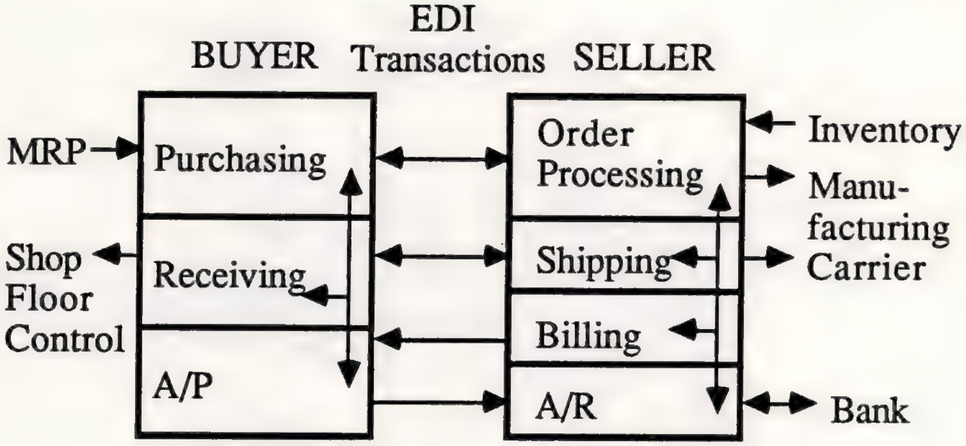
EDI/Application Integration



BUYER

EDI Transactions

SELLER

MRP

Purchasing

Receiving

A/P

Shop Floor Control

Order Processing

Shipping

Billing

A/R

Inventory

Manu-facturing

Carrier

Bank

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EDI Stimulated Development

$ 44 K ($3,000—$250,000)

10 Months (2 Weeks—3 Years)

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EDI/Application Integration

- Affects Many Departments
- Top Management Needs to Set Corporate Goals
- Task Force Approach Required

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EDI/Application Integration

- P.S. Firms Can Assist
- EDI a Starting Point for Total Operational Improvements

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EDI/E-Mail Integration

- GEIS → Quikcomm
- OrderNet → Laser/Fax Mail
- Western Union → Easy Link

Opportunity: E-Mail Forms → EDI

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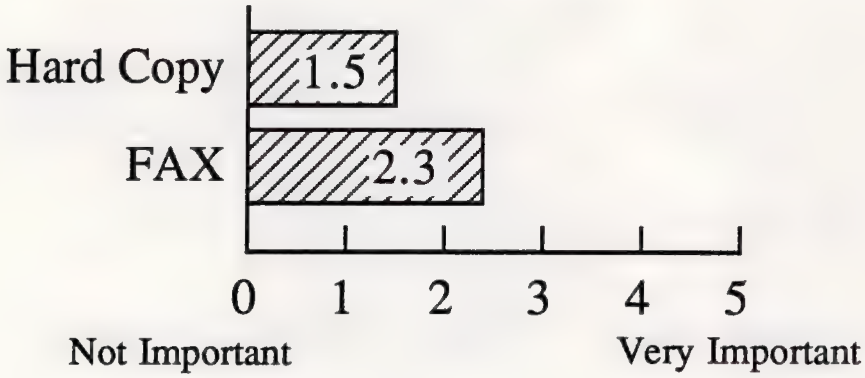
Hard-Copy/FAX
Feature Importance



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Graphics/EDI Integration

Examples:

- Schweber Net
- Design* Express (GEIS)
- WSSDOM (AT&T/ CAD CAM Inc.)

Premise:

Graphics needed in buying decisions—aerospace, electronics, specialty manufacturing, others

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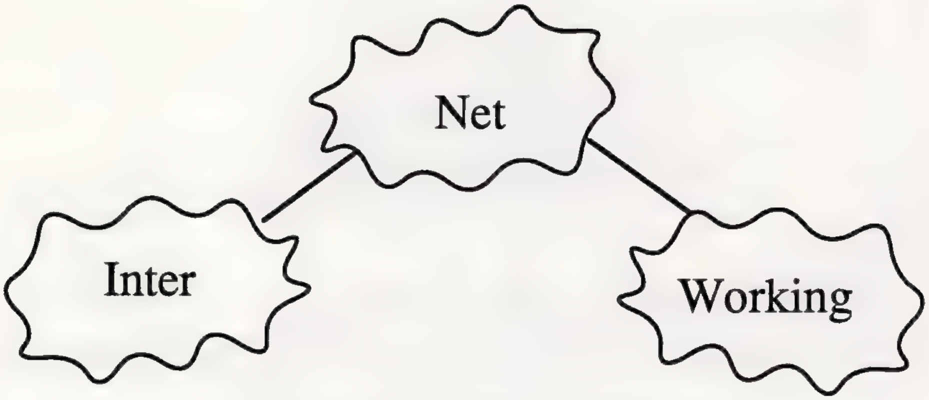
EDI Intertrend #2



Net

Inter

Working

INPUT

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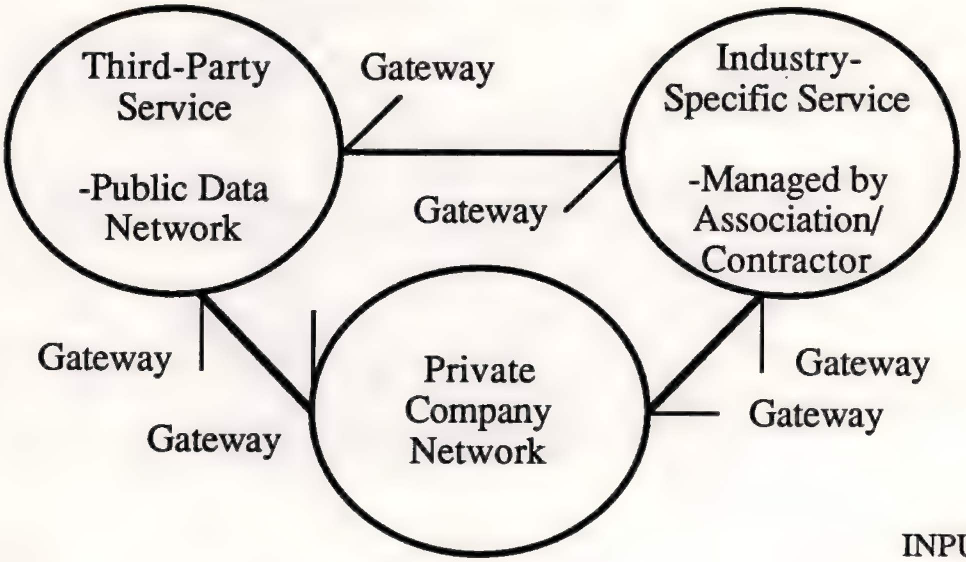
Three Types of EDI Networks



Third-Party Service

-Public Data Network

Industry-Specific Service

-Managed by Association/ Contractor

Private Company Network

INPUT

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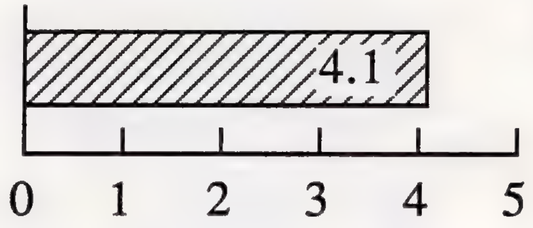
Internetworking

Importance



30% Use Multiple Nets

INPUT

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EDI Internetworking—Reasons

- Trading Partners on Other Services/ Networks
- Cross-Industry Trading
  - Cross-Industry Translations
- "Universal" Data Services
- Goal Transparency

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EDI Internetworking—Issues

- Double Charging (Users)
- Interexchange Acknowledgement (Standards)
- Settlements (Vendors)

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EDI Interworking Examples

GEIS' EDI * Express → Others (On Request)

SSW's Ordernet ↔ MDC's EDI * Net (Grocery)

RaiLinc ↔ TranSettlements, Kleinschmidt

CDC's RediNet ↔ Private Networks (RediAgent)

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Interworking: The Future
X.400

- E-mail (Messaging) Connectivity
- EDI Documents within X.400 Envelopes
- International Implications
- Mixed Media (Voice, Video, Graphics, Data)

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EDI Intertrends #3

Inter — Nationalization

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EDI Internationalization

- North America
- Australia
- Hong Kong
- Korea
- Europe
- New Zealand
- Singapore
- etc.

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Interview Results

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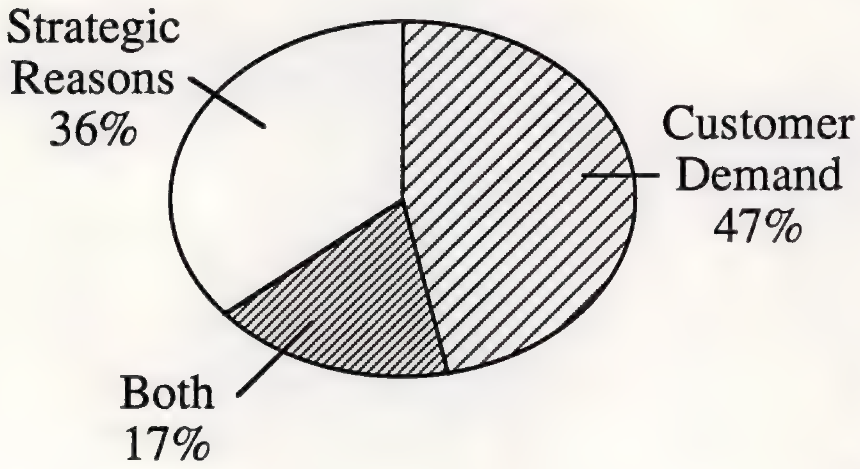
Why Was EDI Implemented?



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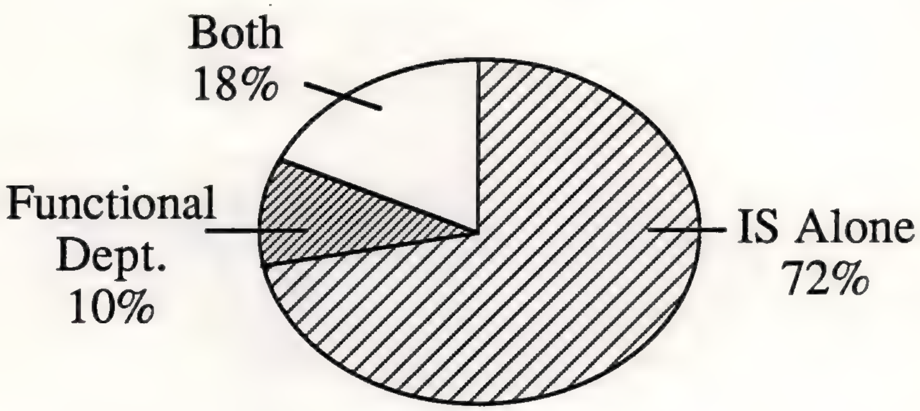
Who Implements EDI

(EDI Managers)



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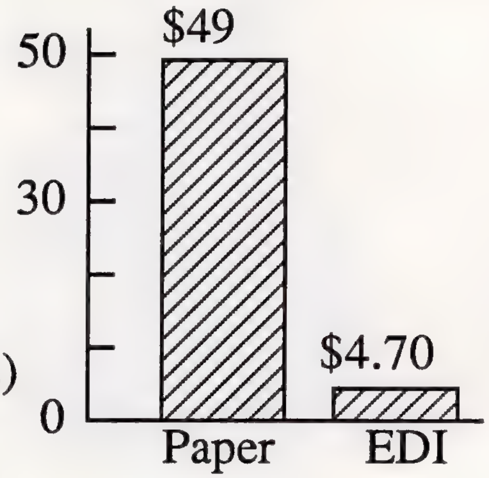
Paper versus Electronic Transactions



(Survey Results)

INPUT

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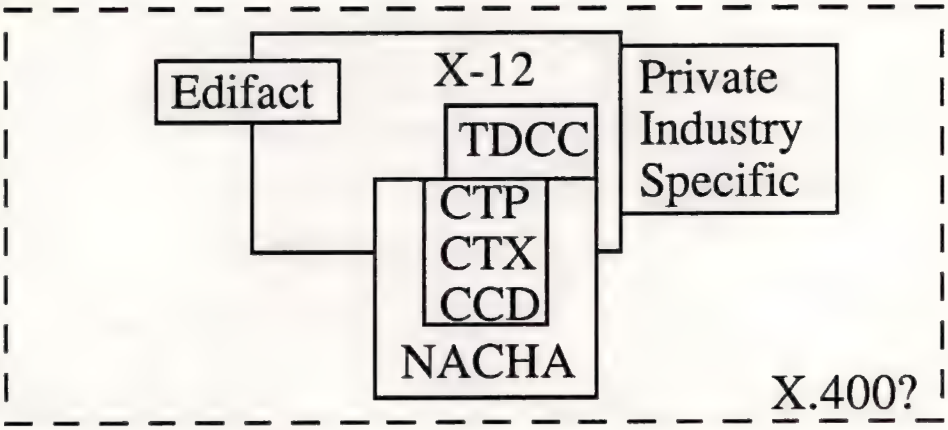
EDI Standards Relationships



Edifact

X-12

TDCC

CTP
CTX
CCD

NACHA

Private
Industry
Specific

X.400?

INPUT

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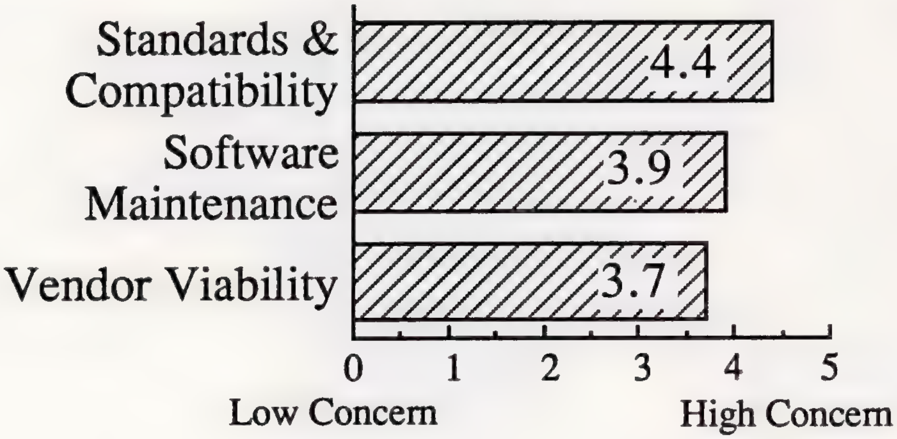
EDI User Issues and Concerns



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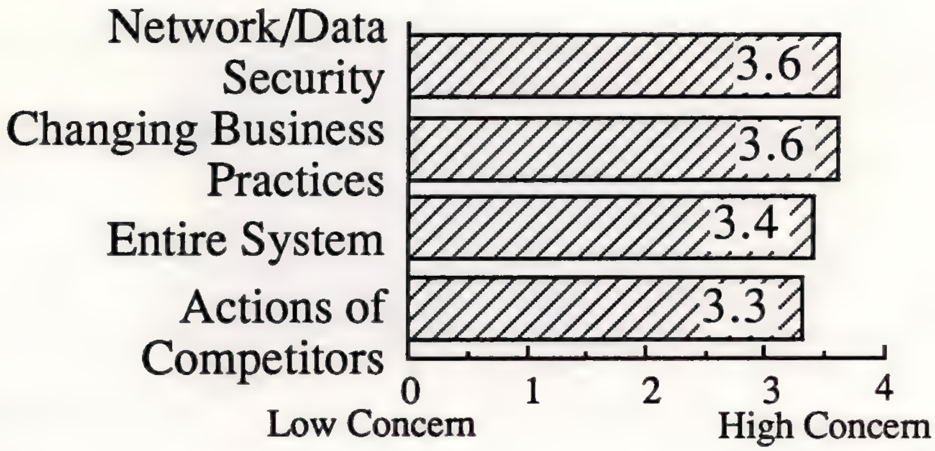
EDI User Issues and Concerns



INPUT

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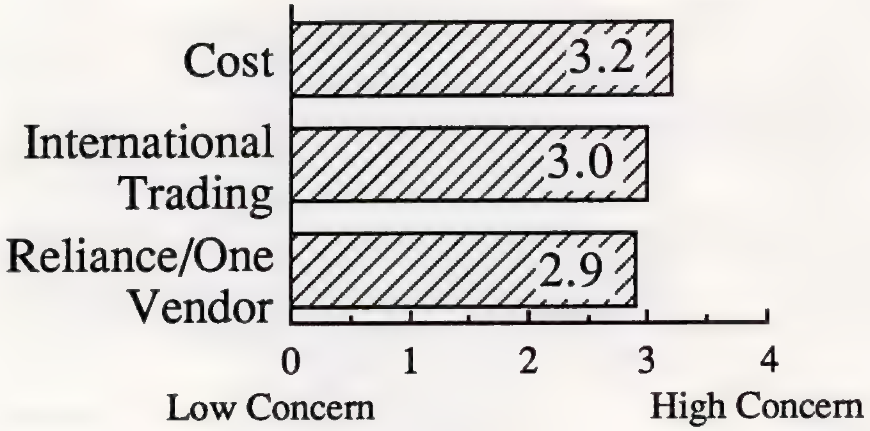
EDI User Issues and Concerns



INPUT

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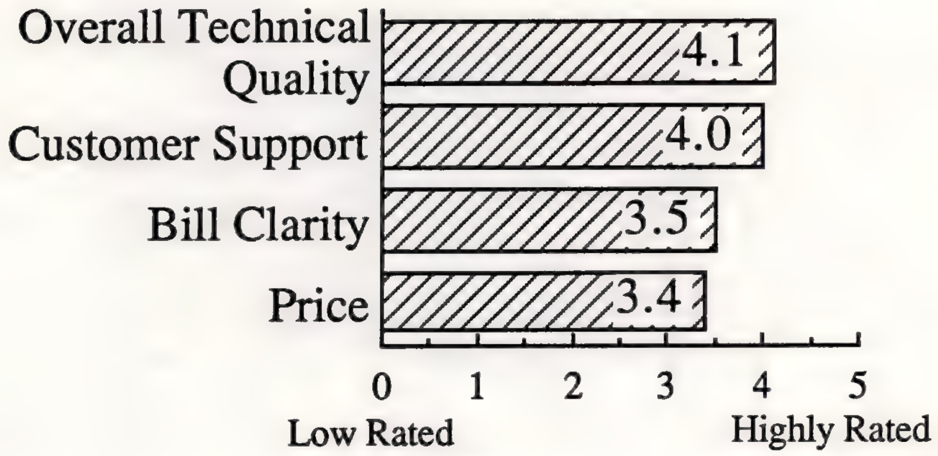
User Rating—Third-Party Networks

Averages—All Networks



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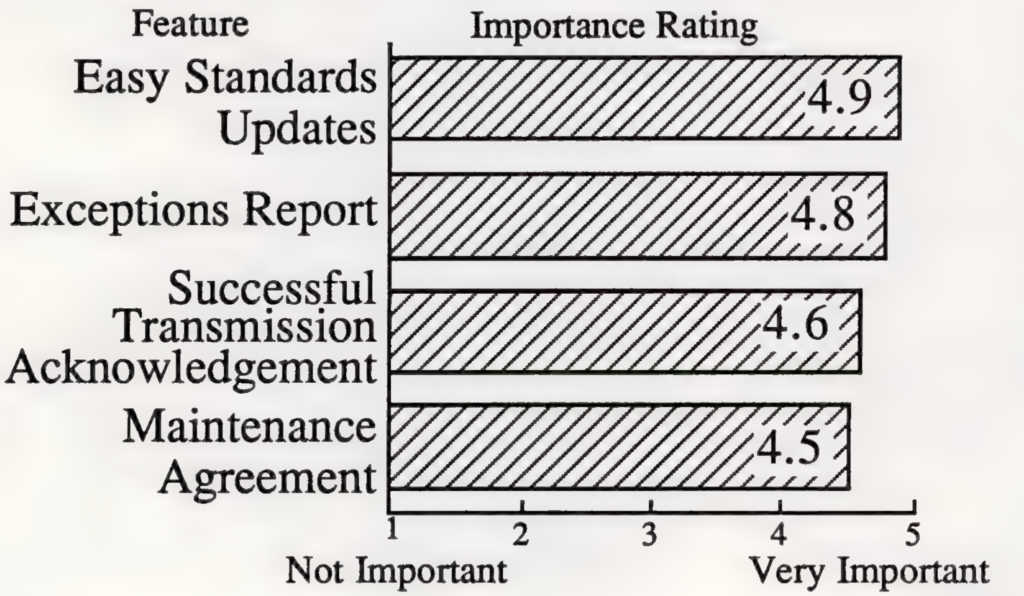
Software Features Importance



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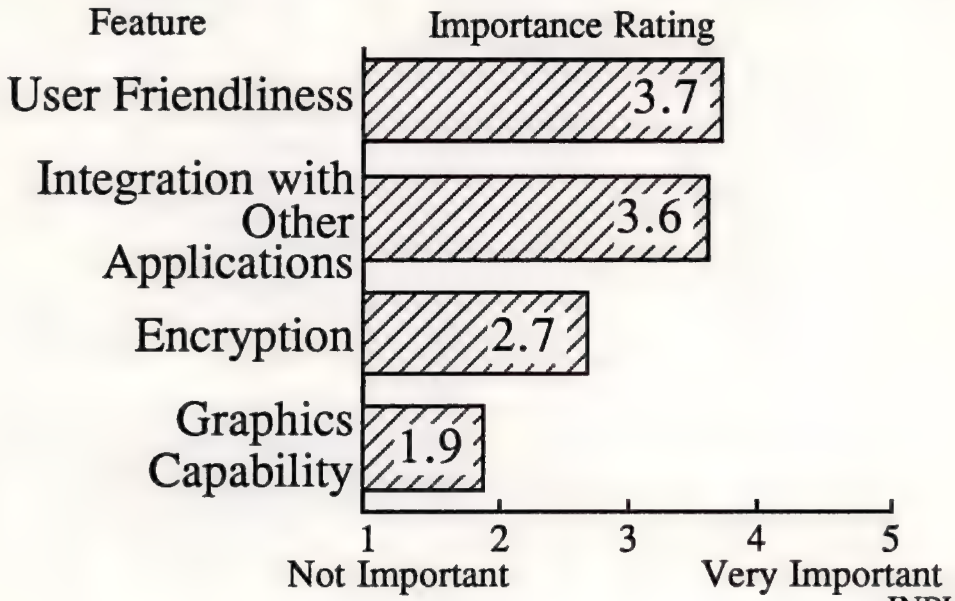
Software Features Importance



INPUT

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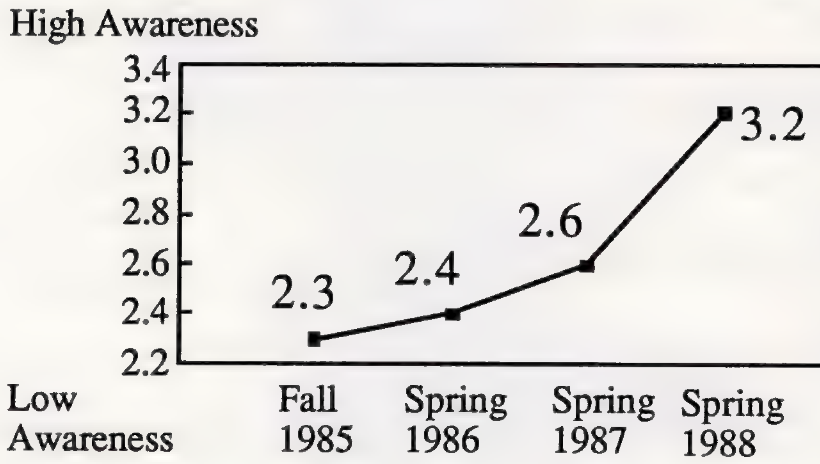
Forecast Factors

EDI Awareness Is Growing



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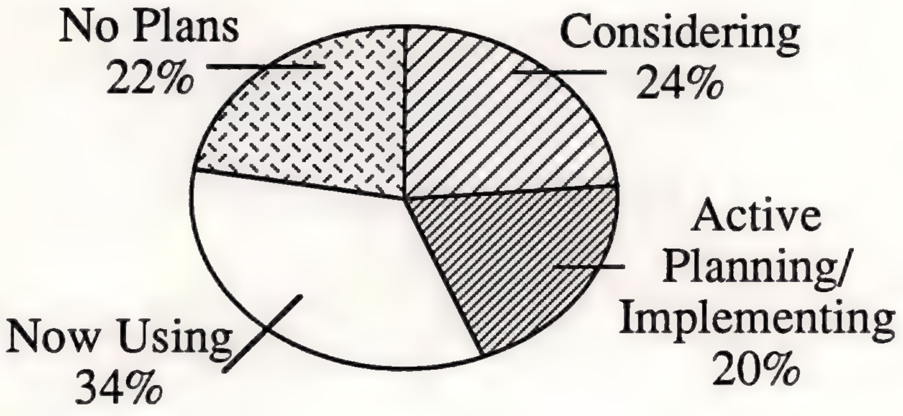
Forecast Factors

EDI Status
(IS Managers)



INPUT

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Forecast Factors

Transaction Growth

User's Average Response

1986-1987	1987-1988
181%	156%

INPUT

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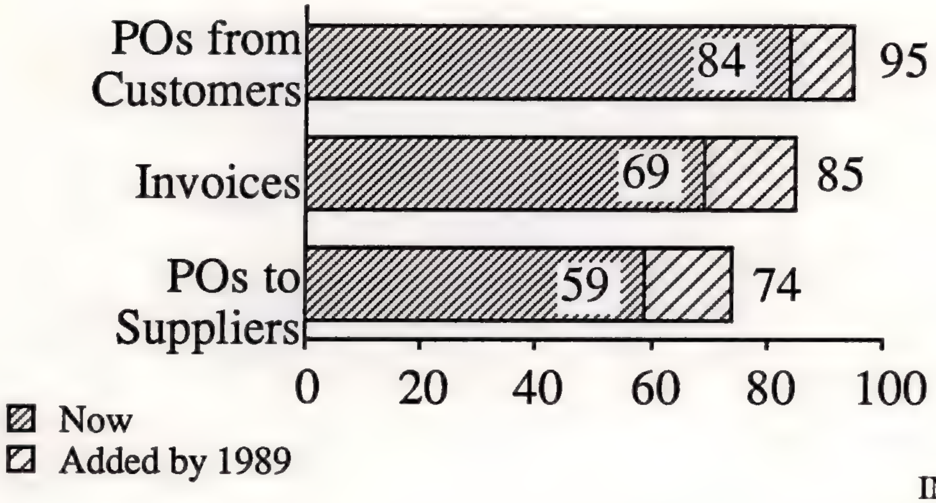
Forecast Factors

Transaction Type Growth

(Percent)



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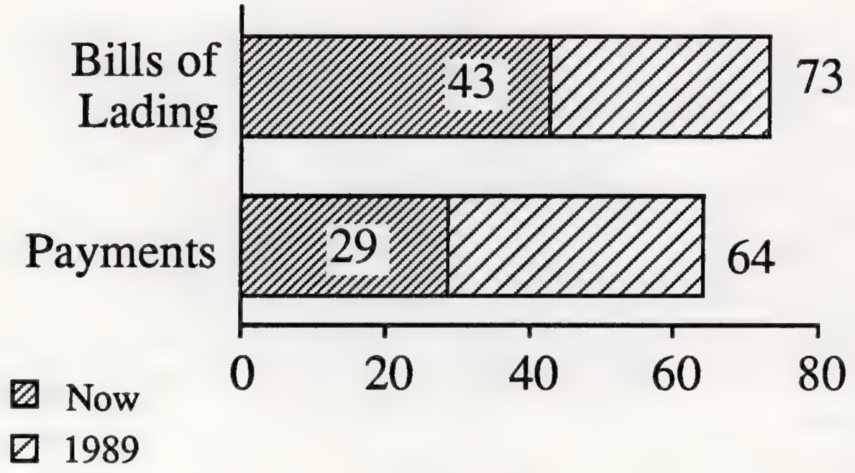
Forecast Factors

Transaction Type Growth
(Percent)



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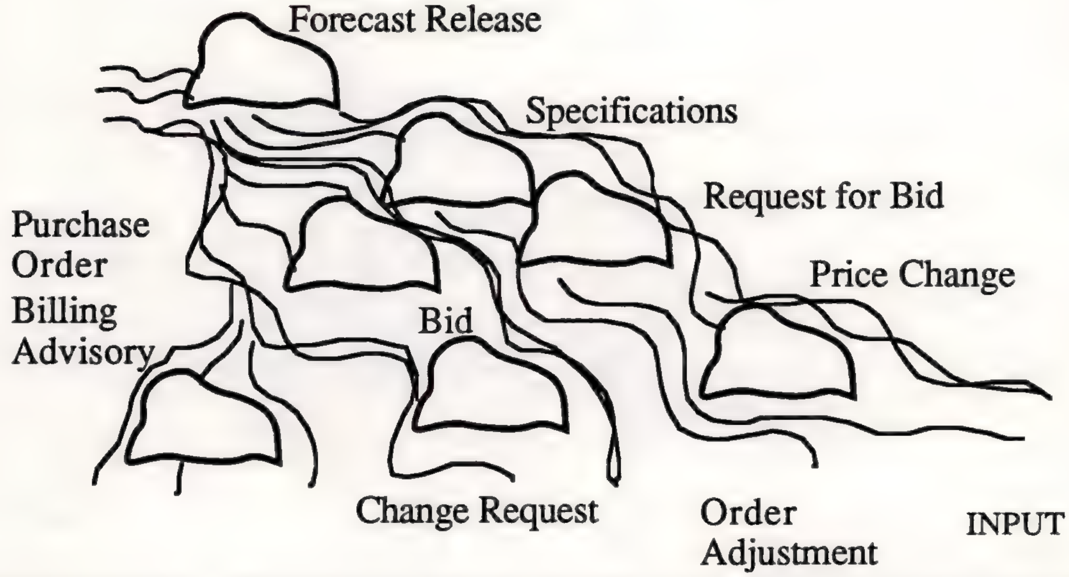
The Cascade Effect



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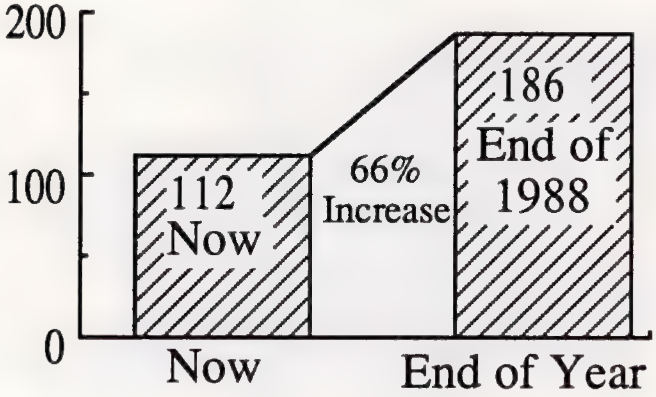
Forecast Factors

Number of EDI Trading Partners



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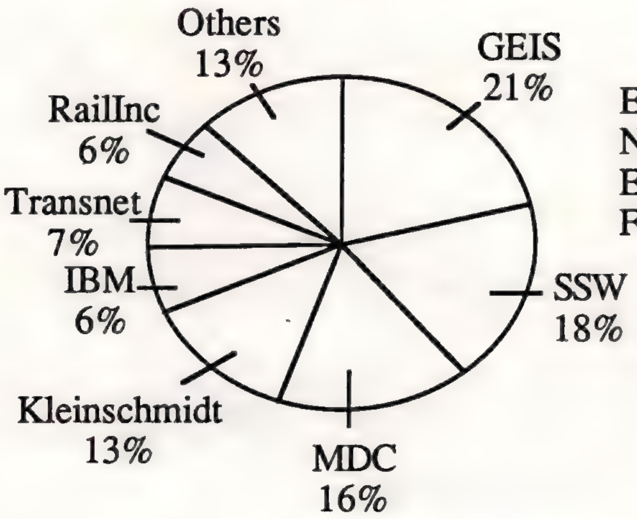
EDI Network/Processing Service Market Shares



Excludes Private
Networks,
EMC, Interface,
Federal

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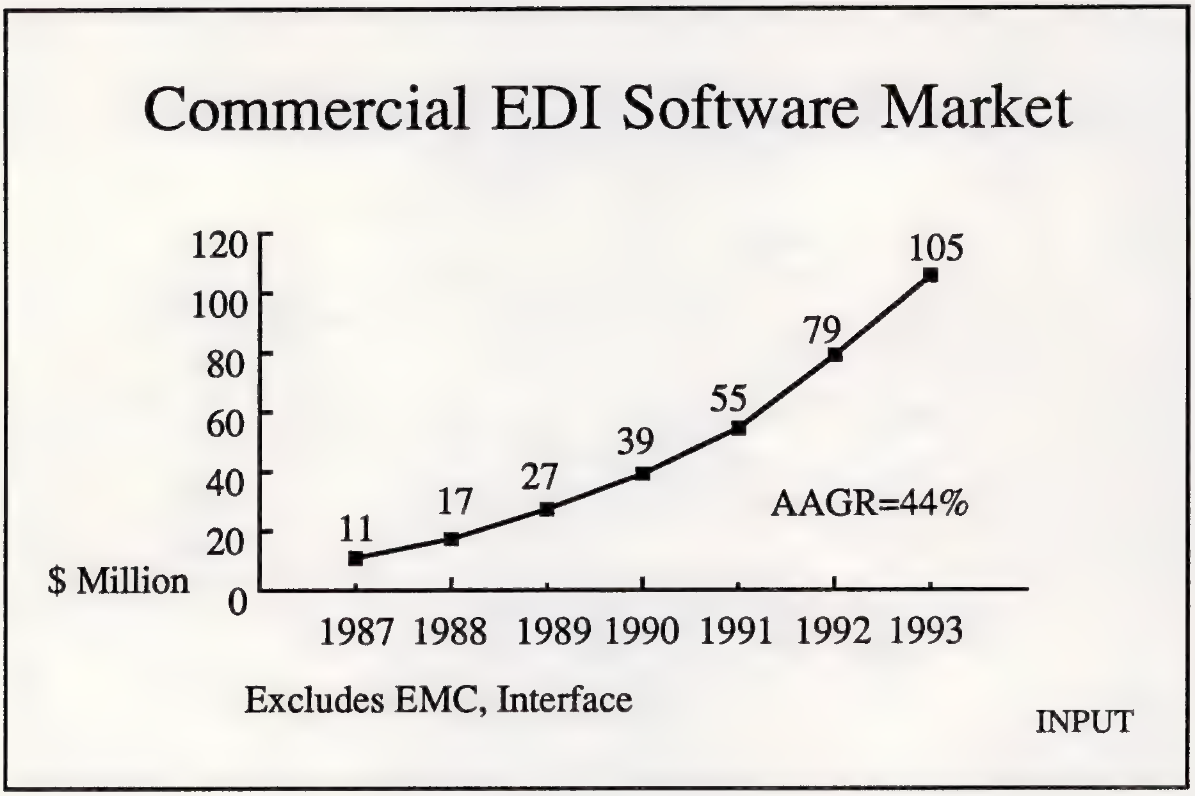

Commercial EDI Software Market

Excludes EMC, Interface

INPUT

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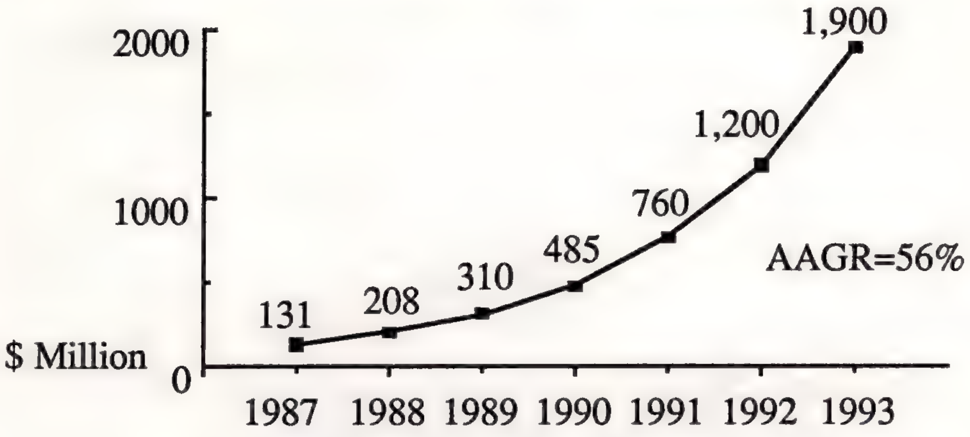
EDI Market Forecast



Network/Processing Services, Software, Professional Services, Federal and Commercial Markets

INPUT

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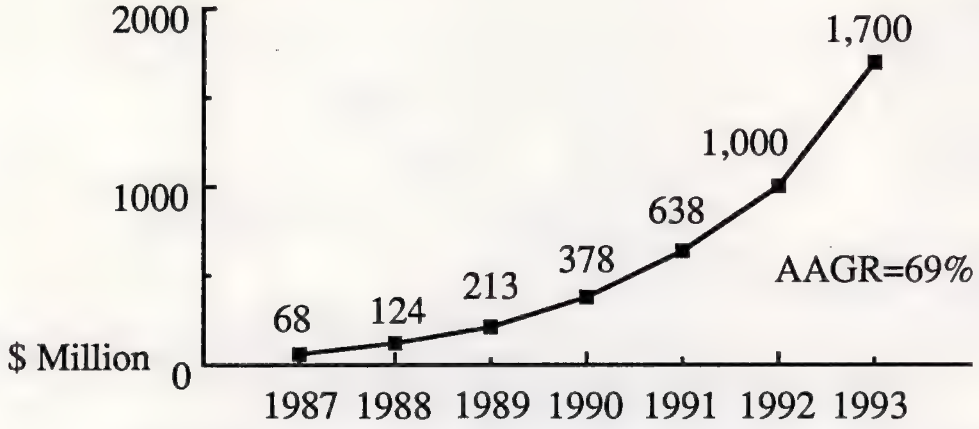
EDI Network/Processing Services



Federal and Commercial - Includes EMC and Batch Interface

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EDI Software Market

Market "Leadership" up for Grabs

Non IBM Platforms Being Addressed
- DEC, HP, OLTP

The Professional Services Opportunity

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EDI—The Years Ahead

1988

1989

1990

1991

INPUT

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EDI Intertrend #4

Standards

Interfusion

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Standards Interfusion

X12 ⟶ Edifact 400

Pro:	Edifact—'The True Faith'
Con:	X.400 Cycle Is 4 Years Varieties of X.400?
When:	2-10 Years

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Standards Interfusion

TDCC ←→ X12

Pro:	Would Solve Coordination Problems
Con:	Work Load Issues
When:	Now

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Standards Interfusion

UCS ←→ X12

Pro:	Companies Now Using Both
Con:	"Ain't Broke—Why Fix It?"
When:	2-5 Years

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Standards Interfusion

Proprietary/ Industry-Specific → X12

Pro:	"Go with the Flow"
Con:	Ease of Change
When:	Now

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Standards Interfusion

X12 ←→ Insurance (IIR/Accord)

Pro: Useful in Mortgage Banking, Transportation, Others?

Con: Coordination Issues

When: 2 Years (Real Estate)

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EDI—The Year(s) Ahead

Services—New Entrants

- ADP
- NDC
- BOCs
- EDS

"Secondary" Players Find Niches

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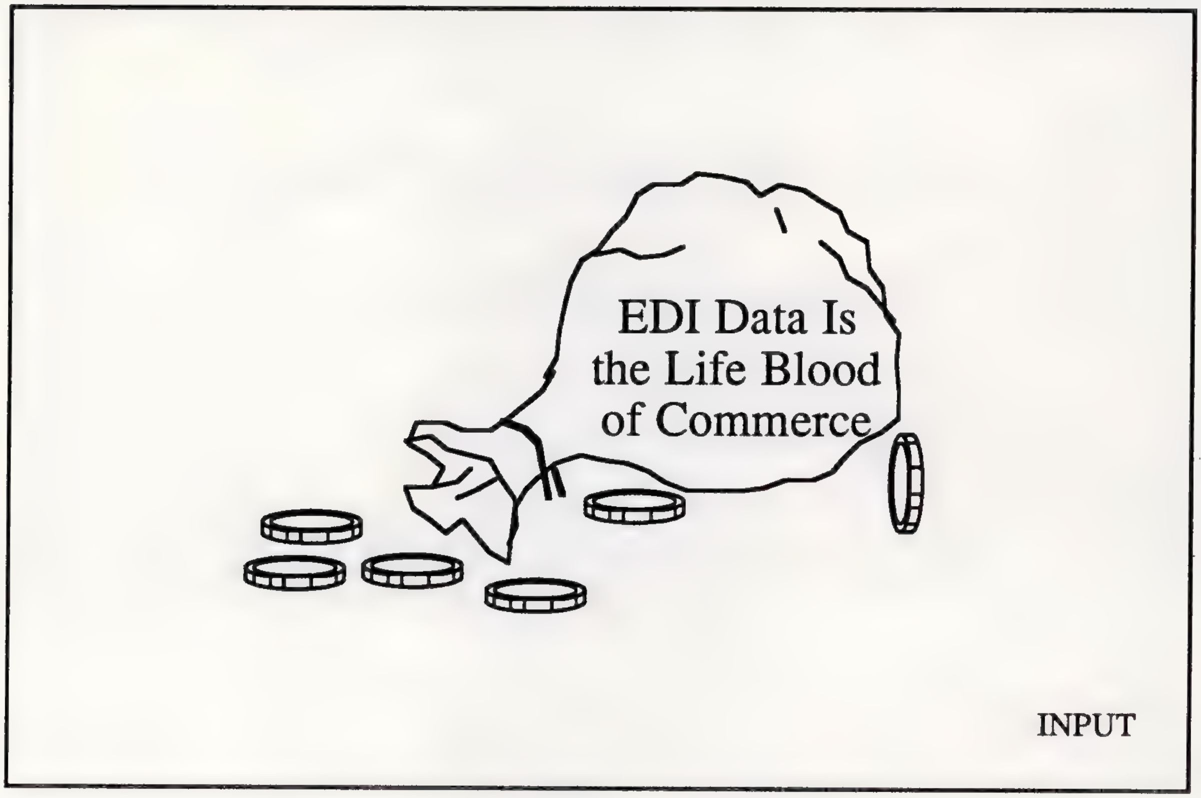

EDI Data Is the Life Blood of Commerce

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EDI Intertrends

- Not a Fad
- Addresses Fundamentals
- Becoming Accepted/Required Way of Doing Business

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Victor S. Wheatman
EDI Planning Services Manager
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Victor S. Wheatman is responsible for managing INPUT's Electronic Data Interchange Planning Service. He specializes in research and analysis in the telecommunications, electronic data interchange, and office systems markets. Prior to joining INPUT, he held marketing and project management positions with an independent market research firm and was an independent telecommunications consultant to several U.S. corporations. His earlier career included management positions in the broadcasting industry.

Mr. Wheatman has a BA from Fairleigh Dickinson University and an MS in communications from Boston University, and holds graduate certificates in management and telecommunications from Harvard and Golden Gate University.

DEC AND IBM EDI STYLE

Bruce Jackson

Manager
Interorganizations Systems/
EDI Marketing

IBM Information Network

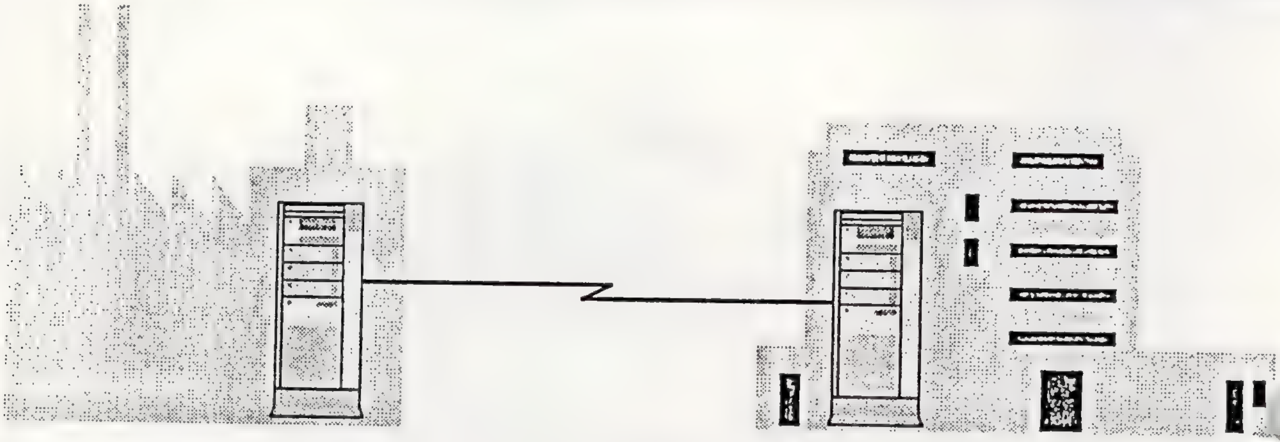
IBM

Information Network

EDI Services

... the electronic bridge between supply and demand

EDI definition



Electronic Data Interchange (EDI)

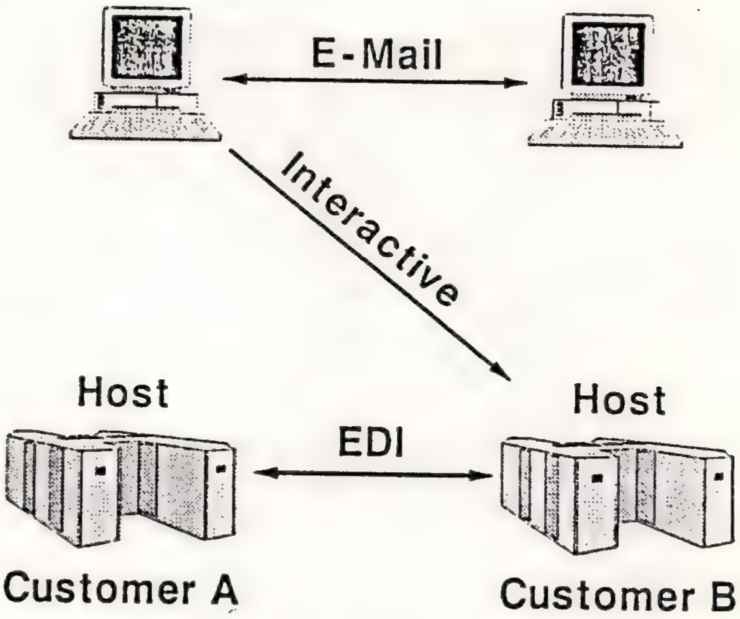
- The computer-to-computer exchange of business documents between enterprises in a standard format

Inter-Organizational Systems (IOS) definition

Notes
Documents
Image

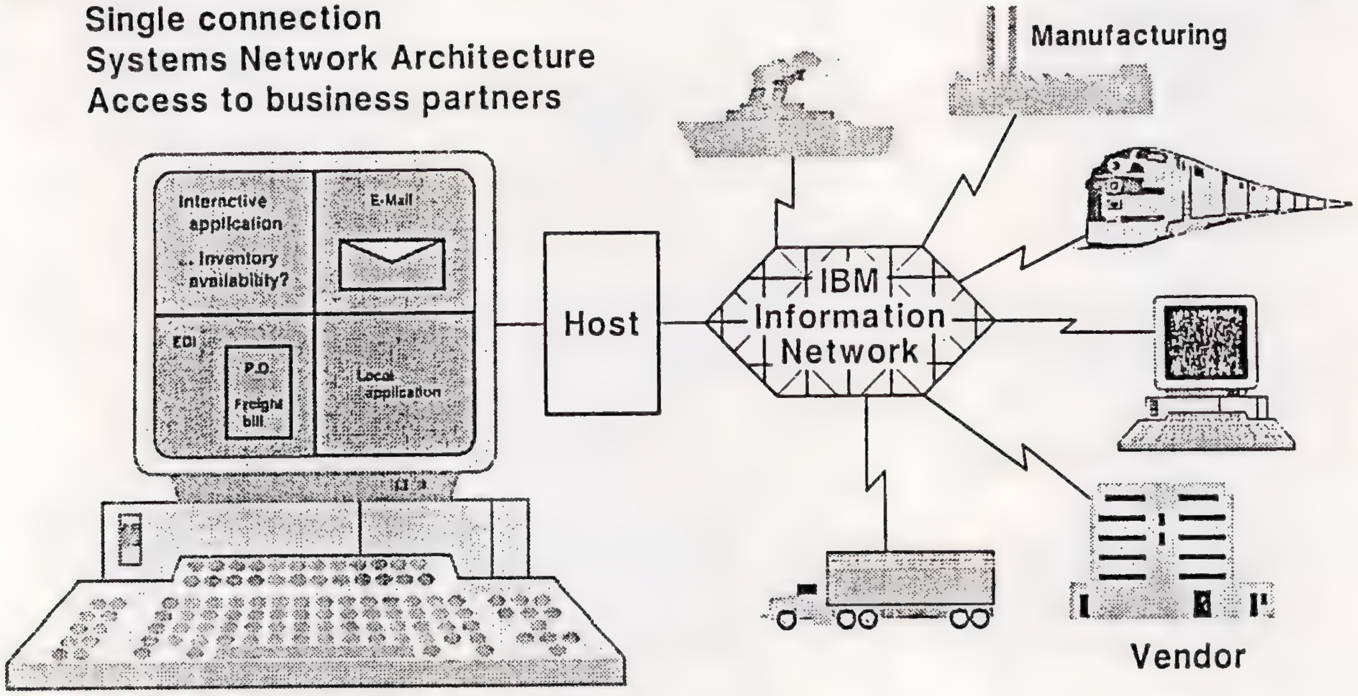
Queries
Order entry
On-line update

Purchase orders
Invoices
Bills of lading
Freight bills
Shipment status

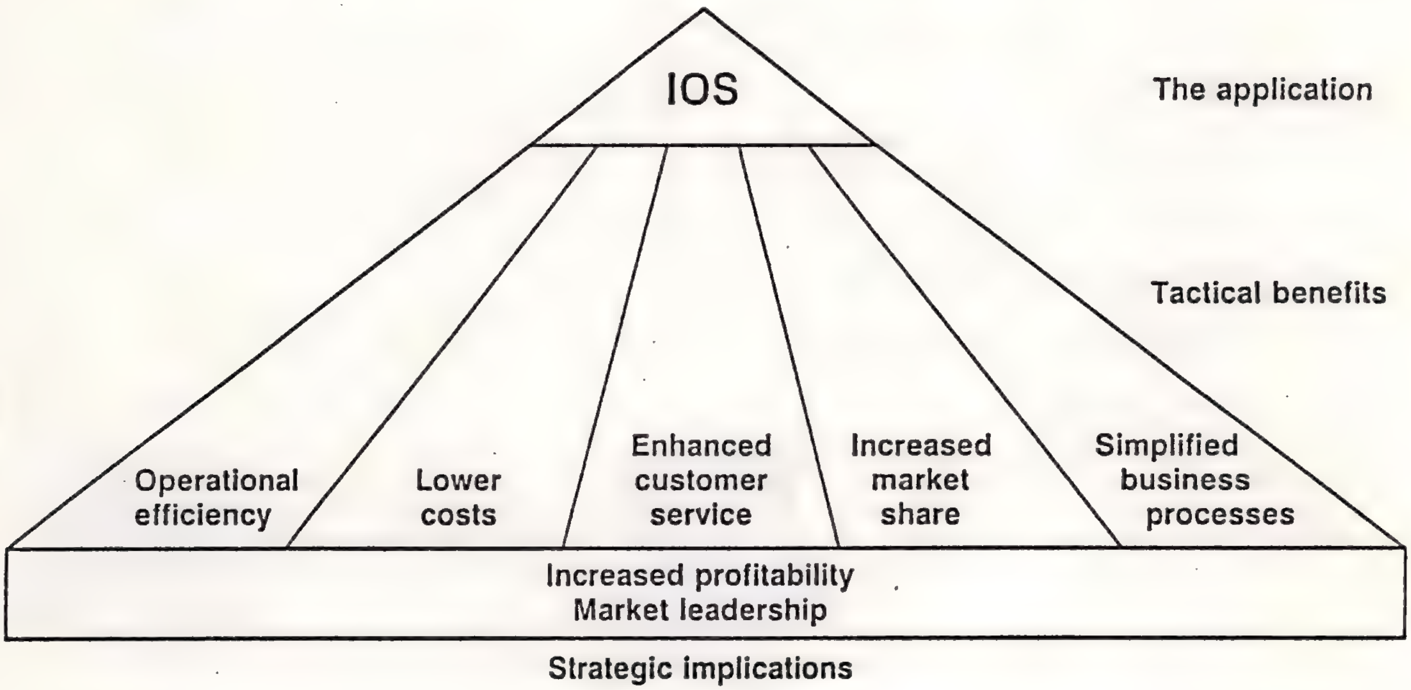


IBM VAN solution

Single connection
Systems Network Architecture
Access to business partners



IOS ... A strategic decision



IOS

The application

Tactical benefits

Operational efficiency

Lower costs

Enhanced customer service

Increased market share

Simplified business processes

Increased profitability
Market leadership

Strategic implications

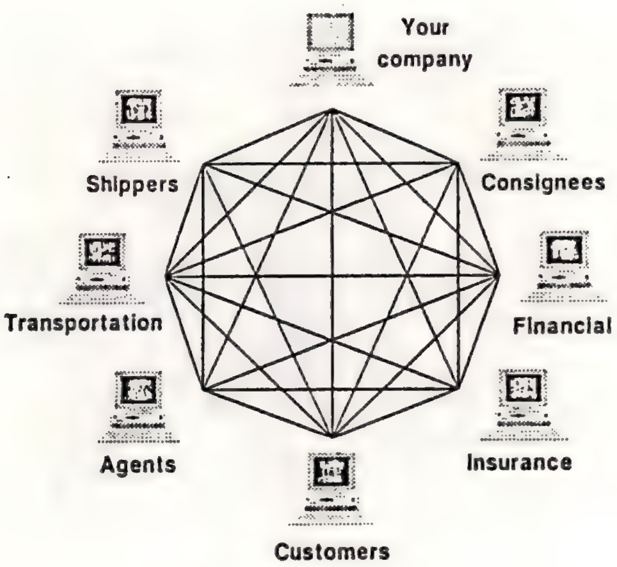
Why VAN?

Implementation considerations

- Hardware
- Communication protocols
- Data standards
- Hours of operation
- Network management
- Security

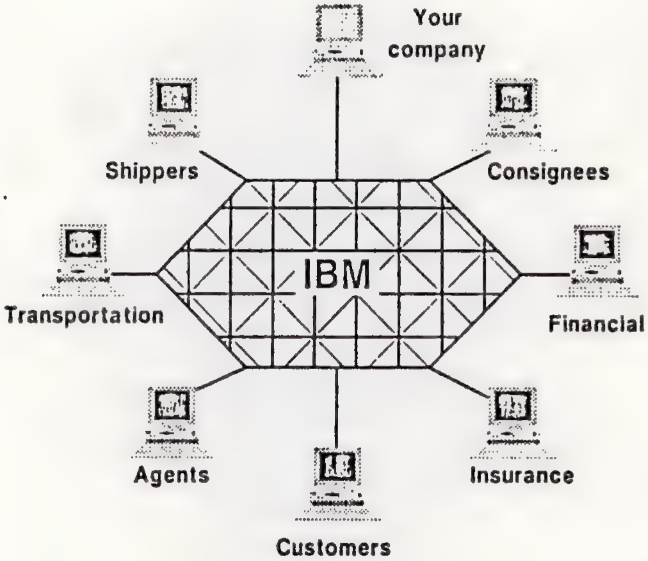
Why VAN?

This


Your company
Shippers
Consignees
Transportation
Financial
Agents
Insurance
Customers

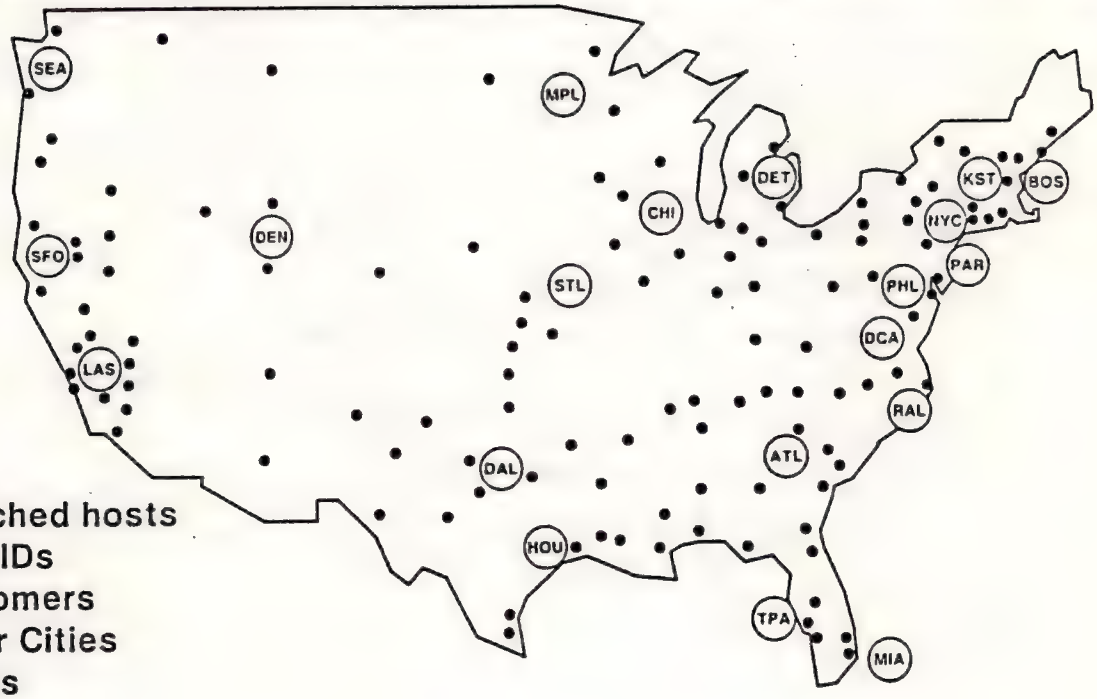
Why VAN?

Or This



The Gateway

Information Network



1,125	Attached hosts
167,118	User IDs
2,500	Customers
276	Major Cities
20	Nodes

Summary

Commitment to EDI

IBM as VENDOR

- Reliability
- Value

IBM as USER

- Manufacturing plants
- Marketing - electronic support

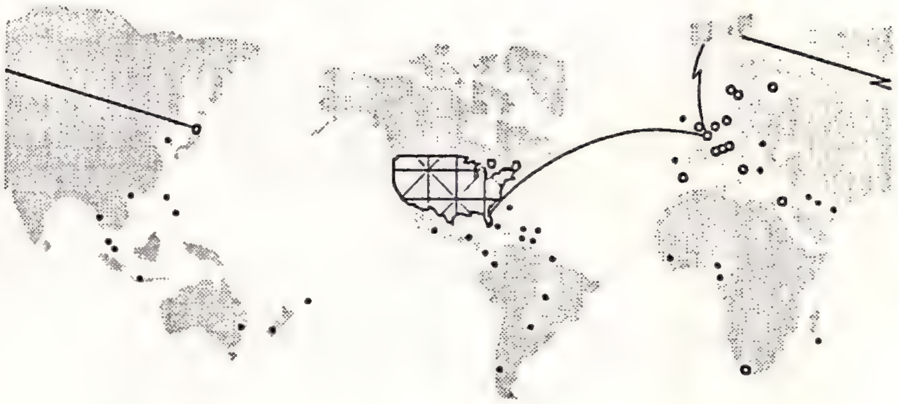
IBM as FULL SERVICE PROVIDER

- Software development
- Professional services

International

IBM Intercontinental Information Services

Austria
Belgium
Canada
Denmark
Finland
France
Germany
Italy
Japan
Netherlands
Norway
Spain
Sweden
Switzerland
United Kingdom
United States



Plus X.25 service to 36 additional countries

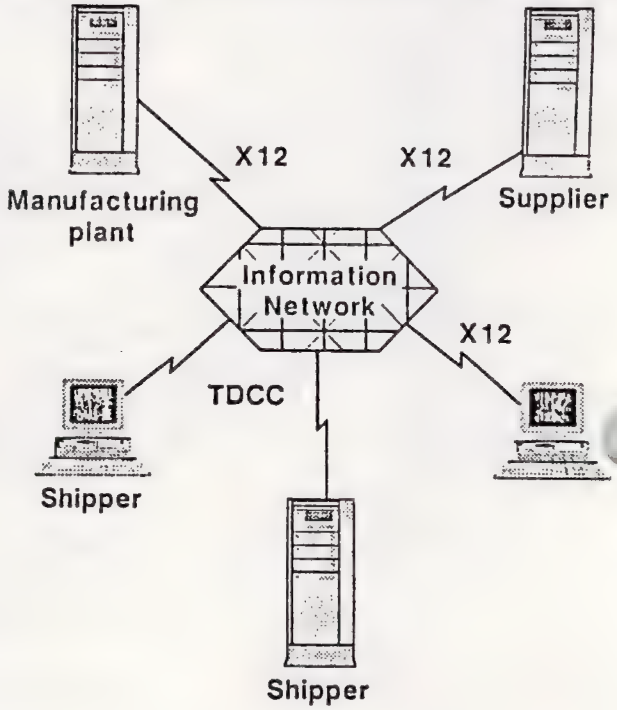
○ Countries with SNA network connection
• Countries with X.25 connection via PTT

IOS / EDI in IBM

Customer: IBM Manufacturing Plants and Vendors

Application: Electronic Data Interchange
- Purchase orders
- Shipping notices
- Invoices
- Electronic Mail

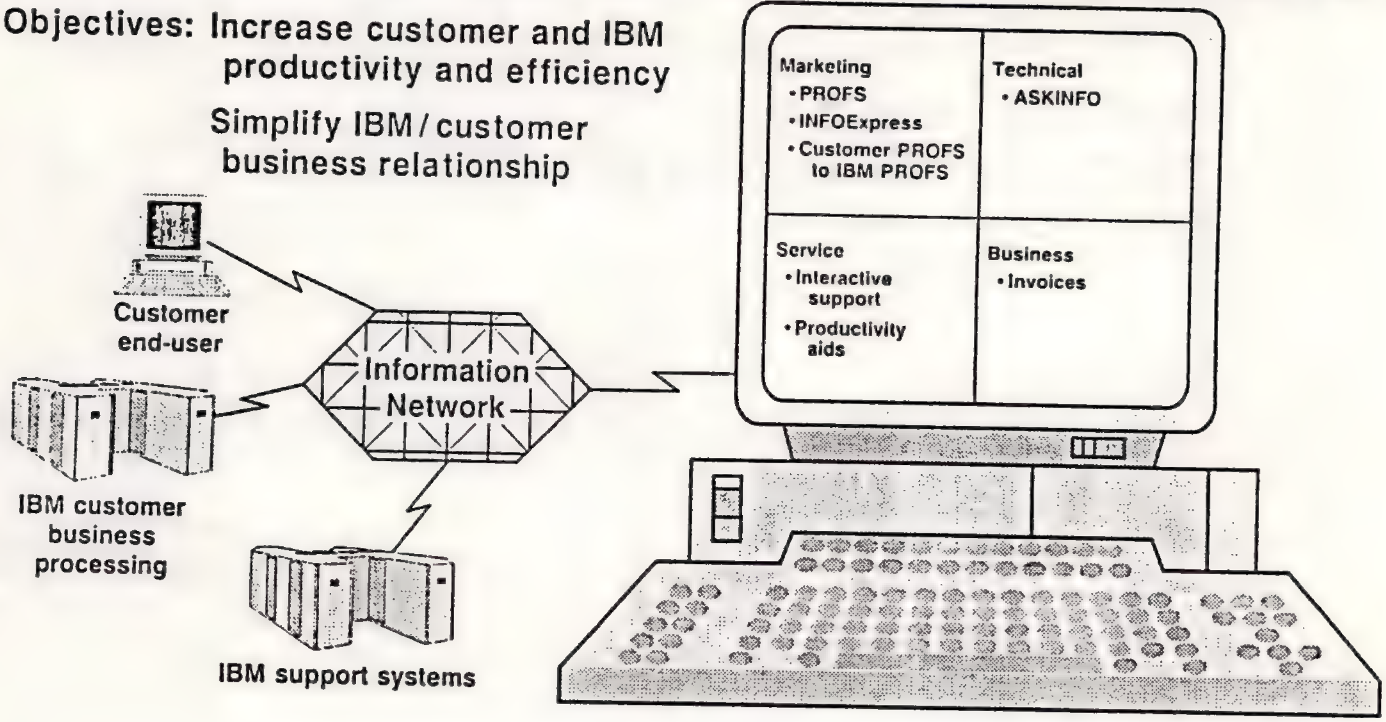
Results:
- Procurement cost reduction
- "Just-in-time" inventory
- Improved productivity
- Reduced travel/ administrative expense



IOS/EDI in IBM
Electronic Customer Support

Objectives: Increase customer and IBM productivity and efficiency

Simplify IBM/customer business relationship



Marketing
- PROFS
- INFOExpress
- Customer PROFS to IBM PROFS

Technical
- ASKINFO

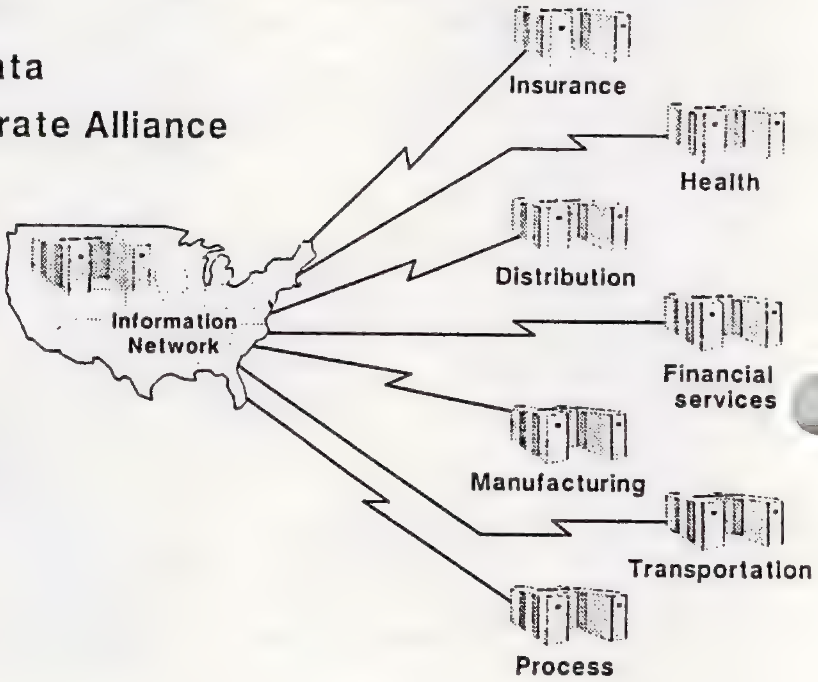
Service
- Interactive support
- Productivity aids

Business
- Invoices

IBM Information Network

Industry expansion strategy

Insurance → IVANS
Agribusiness → Agridata
Health → Corporate Alliance
Retail → QRS



Success factors

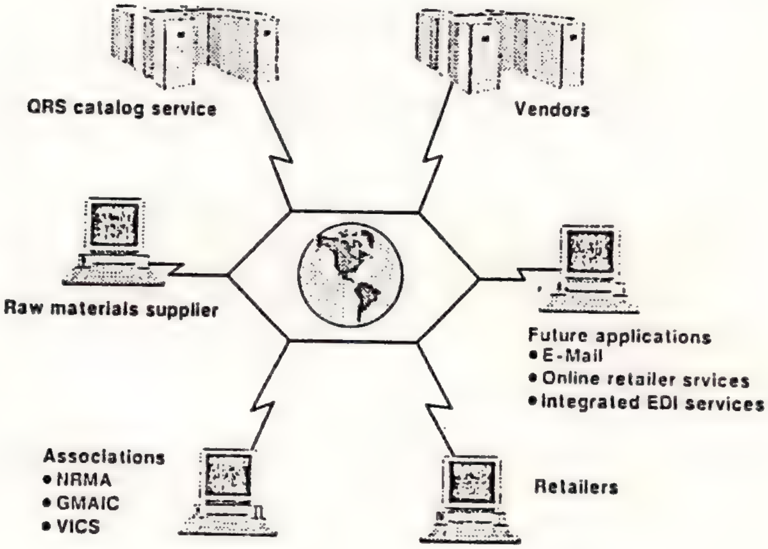
- Alliance programs
- Leveraged applications
- RFP marketing
- Industry data bases

Quick Response Services

Applications:
- Centralized UPC catalog
- EDI

Benefits:
- Just-in-Time
- Common item identification
- Reduced markdowns

Potential:
- International
- Comparative shopping
- Product visuals



Objectives

"Perfect" service

Corporate presence

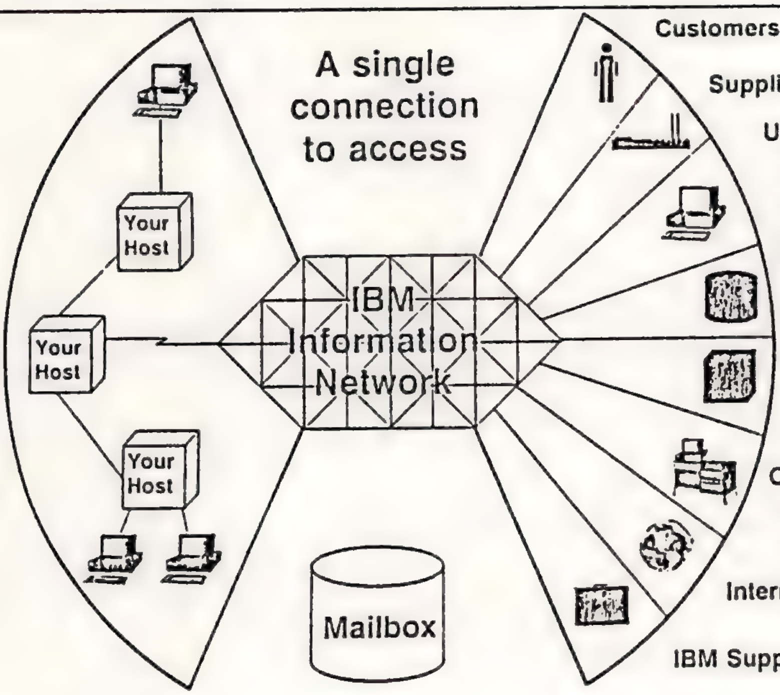
Industry solutions

Worldwide ease-of-use

IOS ... easy as using a telephone

Inter-Organizational Systems

EDI and beyond



A single connection to access

Customers

Suppliers

Users
- DP/Business professionals
- Administrators

Information providers
- Data banks
- Software

Computing services
- Infocenter
- Development center
- Office

Customer applications
- Inventory lookup
- Order entry

International

IBM Support

Bruce R. Jackson
Manager of Interorganizational Systems Marketing and Support
IBM INFORMATION NETWORK

Bruce Jackson first joined IBM in 1974 as a marketing representative and served in Baltimore, the Atlantic Region, and Dallas before moving to Tampa. Among his IBM positions have been Marketing Manager for the Data Processing/National Accounts Division, Manager of Field Product Marketing, Regional Manager in the Southwest, and Manager of Product Marketing for the Information Network.

Among Mr. Jackson's current responsibilities as Manager of Interorganizational Systems Marketing and Support are the Quantum Leap/Trading Partner Program and meeting revenue objectives.

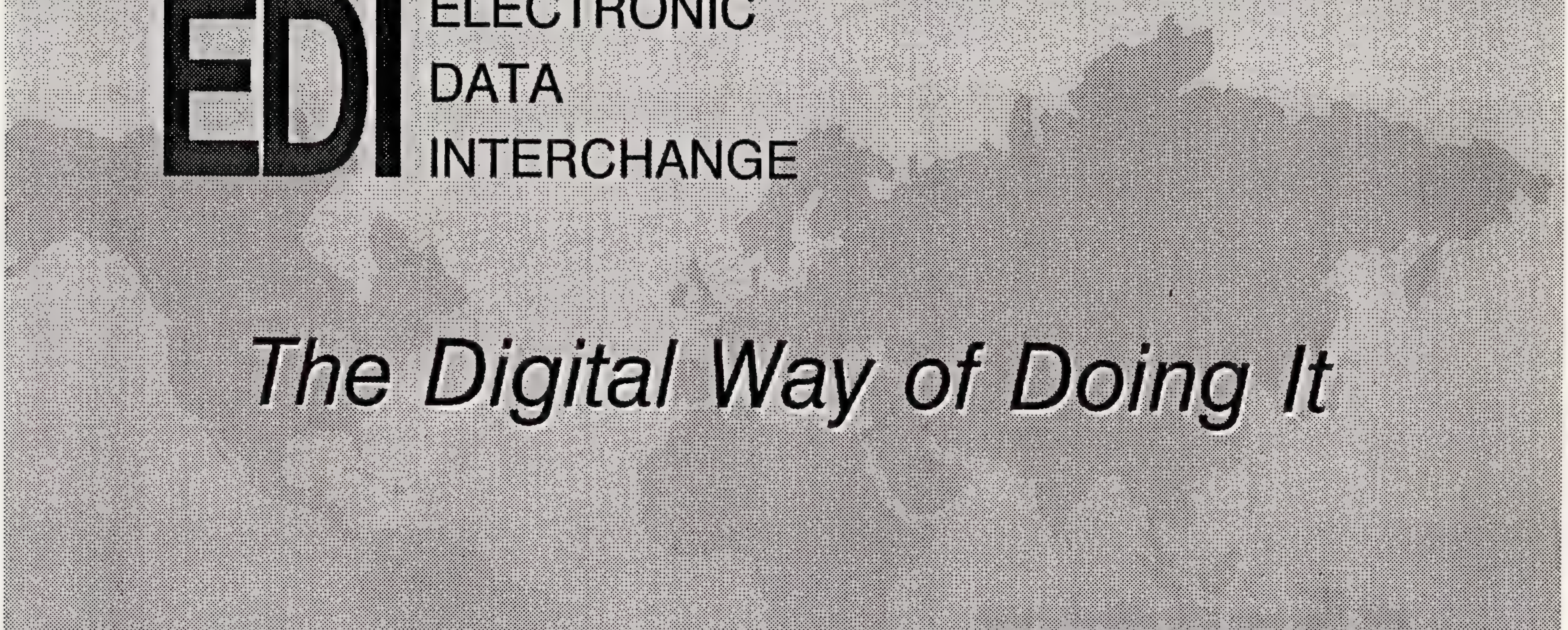
The native of Union, New Jersey is a graduate of Johns Hopkins University.

DEC AND IBM EDI STYLE

Bill Carlisle

EDI Electronic Business Document Services Marketing Manager

Digital Equipment Corporation



EDI ELECTRONIC DATA INTERCHANGE

The Digital Way of Doing It

Input
Intertrends Conference
San Francisco

digital

Agenda

Digital's

- Perspective of the EDI market
- Internal implementation
- Product and services direction

Market Perspective

Current Business Trends Support Forecast of Rapid Growth and Strengthening Market

- Enterprise-to-enterprise information sharing systems
- Increasingly complex international trading relationships
- Rapidly changing competitive environments
- Customer service demands
- Technology advancement combined with international standards support

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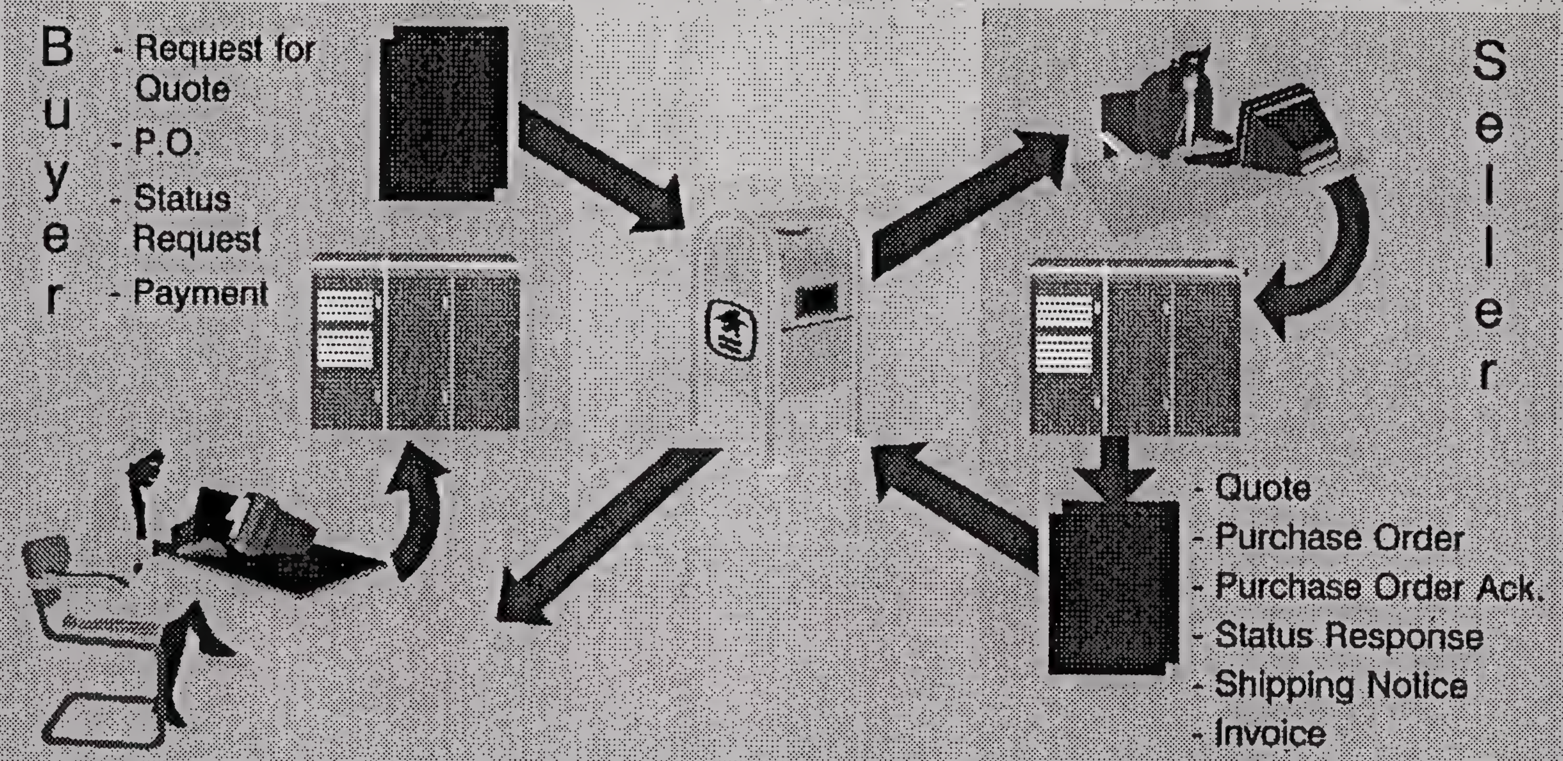
Market Perspective

The Business Problems Are Acute



Buyer

- Request for Quote
- P.O.
- Status Request
- Payment

Seller

- Quote
- Purchase Order
- Purchase Order Ack.
- Status Response
- Shipping Notice
- Invoice

Statistics Support the Need for Senior Management Attention

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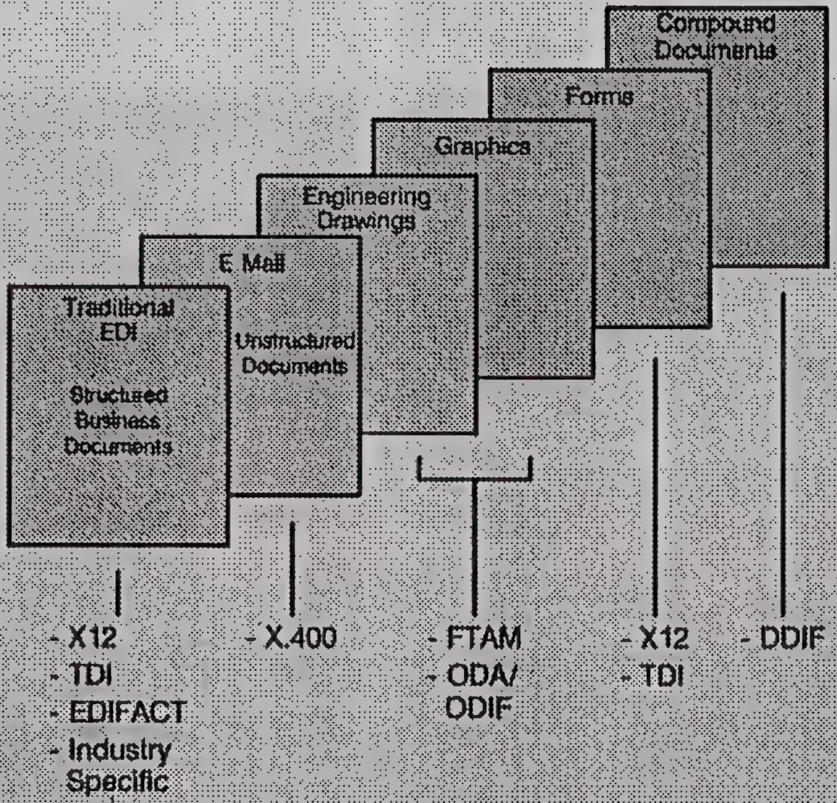
Market Perspective

- A flood of new EDI pilots are occurring nationally and internationally
- Existing installed pilots are moving from PC's to larger production systems
- Applications and systems integration are becoming increasingly more important
- Second generation EDI implementations are forcing many new questions to be answered

digital

Market Perspective

Which Standard(s) Should I Use to Meet My Total Business Needs?



Traditional EDI

Structured Business Documents

- X12
- TDI
- EDIFACT
- Industry Specific

E Mail

Unstructured Documents

- X.400

Engineering Drawings

Graphics

- FTAM
- ODA/ ODIF

Forms

- X12
- TDI

Compound Documents

- DDIF

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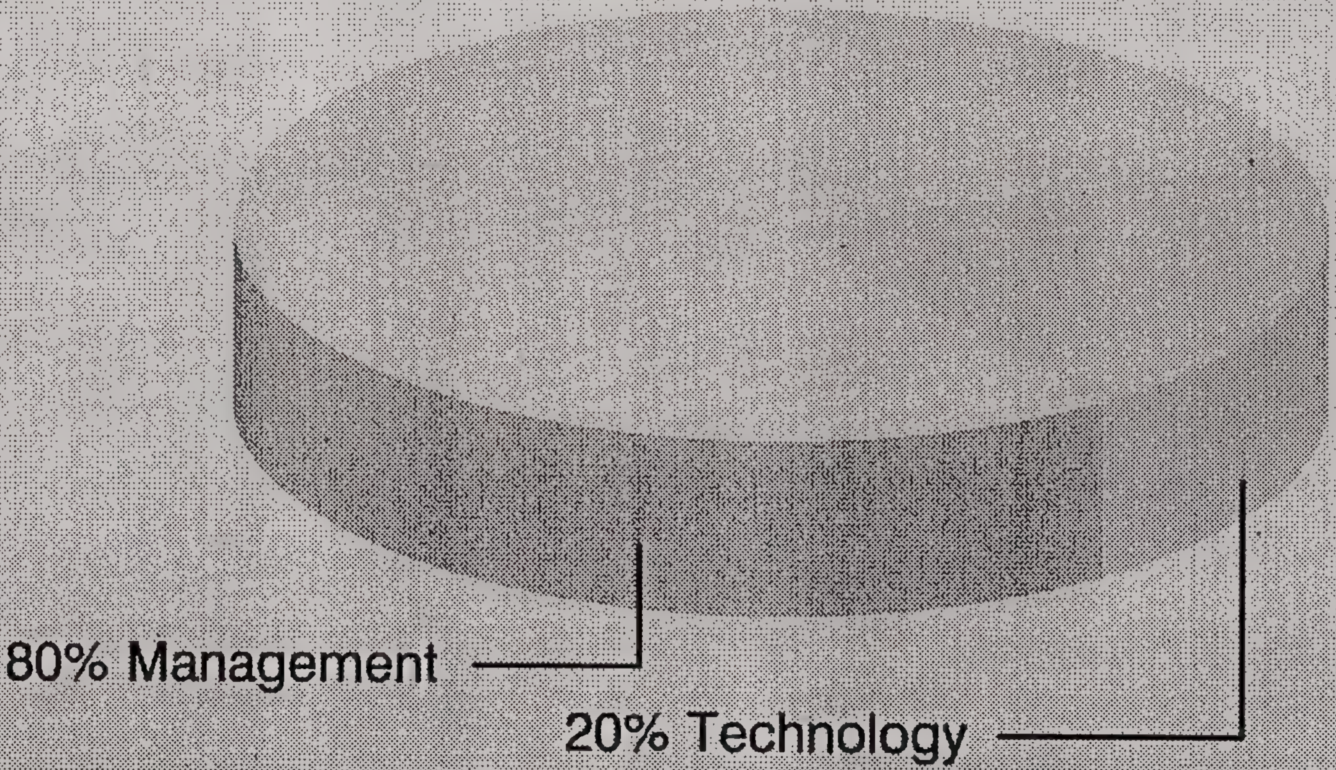
Market Perspective

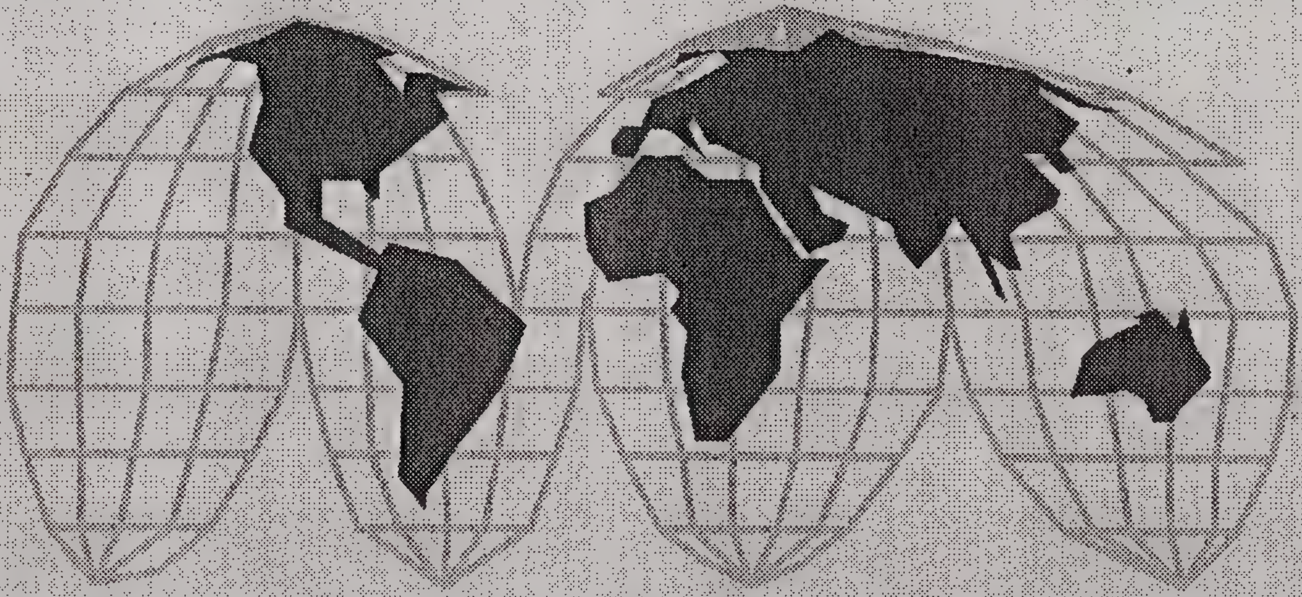
EDI Implementation Issues



The Market Is Maturing

These questions are being answered

Digital World's Largest Private Computer Network



- 125,000 employees
- 33 countries
- 450 facilities

- Over 30 mfg. plants
- 30,000 nodes
- 82,000 E mail users

- 200 Videotex databases
- 1,000 Notes conferences

digital

Digital Faced Three Problems

- Each group might implement its own EDI technical solution to meet its requirements
- Digital's customers/suppliers might face multiple communication approaches when doing business with Digital
- Strategic importance to Digital, our customers and suppliers of a successful implementation

EDI

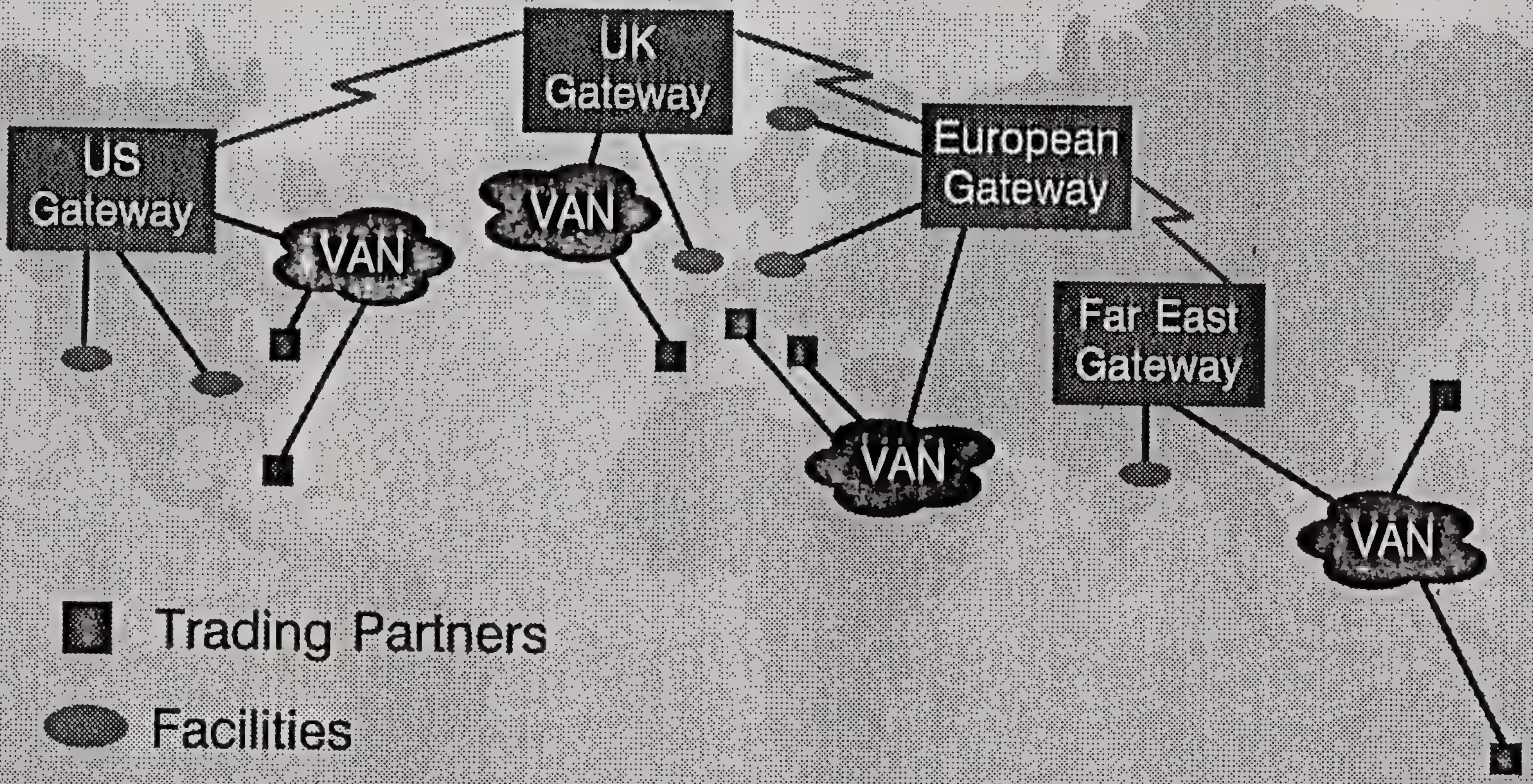
Today

Digital Is Committed to the Use of EDI With It's Trading Partners to:

- Achieve mutual operating efficiencies and cost savings
- Support key business strategies
  - i.e., Just-In-Time, Enterprise-to-enterprise information sharing
- Meet rapidly changing competitive environments
- Enhance "Ease of doing business"

Digital's Implementation Tomorrow

Distributed Regional International Gateways

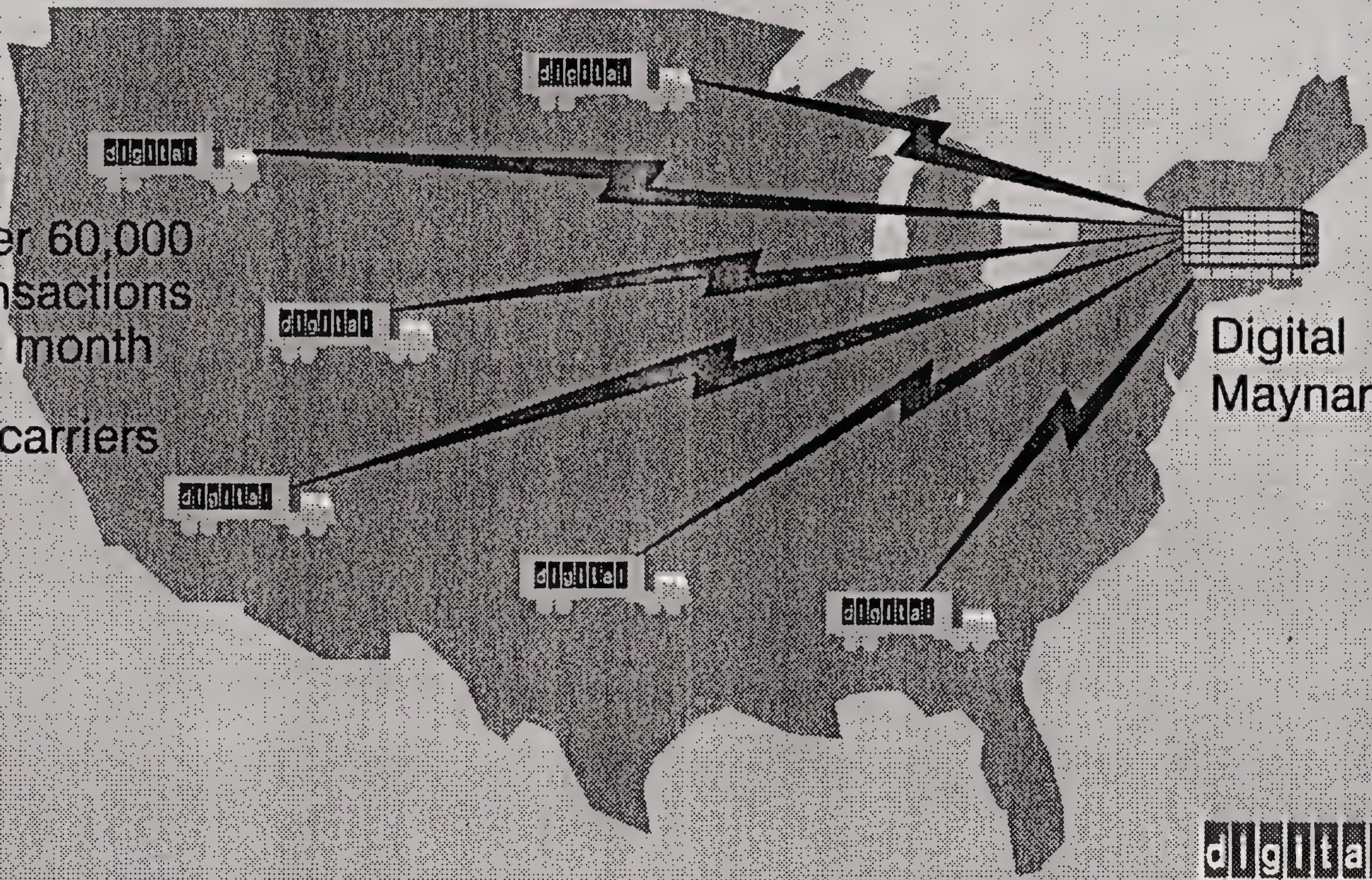


■ Trading Partners

● Facilities

digital

Distribution
Accurate Carrier Location



- Over 60,000 transactions per month
- 35 carriers

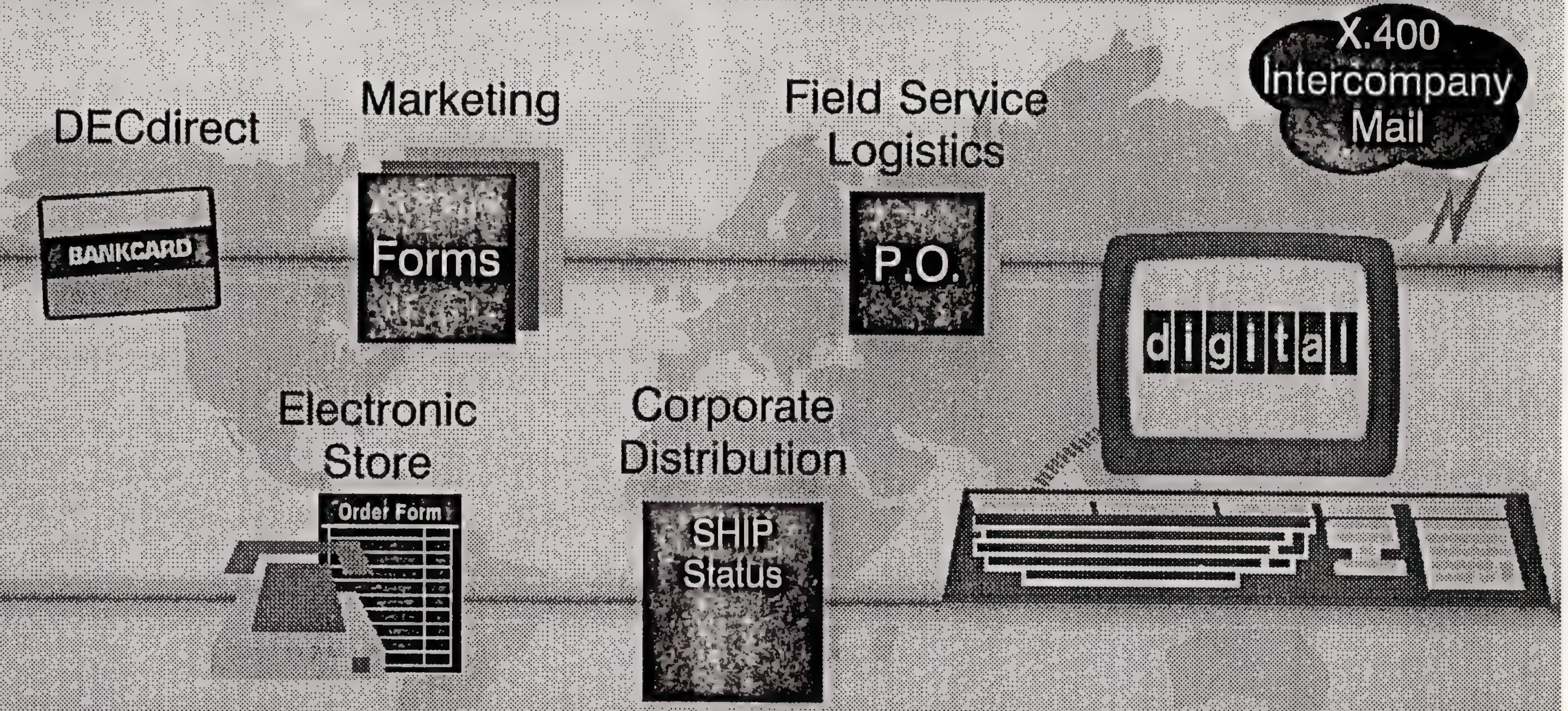
Digital
Maynard, MA

digital

Digital's Electronic Connection

Electronic Store			EDI	Special Customer Services	Electronic Forms/Mail
• General Info	• Product and Services Specifications and Demos	• Interactive Quoting and Ordering	• Quote • P.O. • P.O. Change • Acknow. • Invoice • Remittance Advice	• Configuration Aids • Special Terms • Financials	• Customer to Sales • Communications

Digital Internal EDI Applications



DECdirect

Marketing

Field Service Logistics

X.400 Intercompany Mail

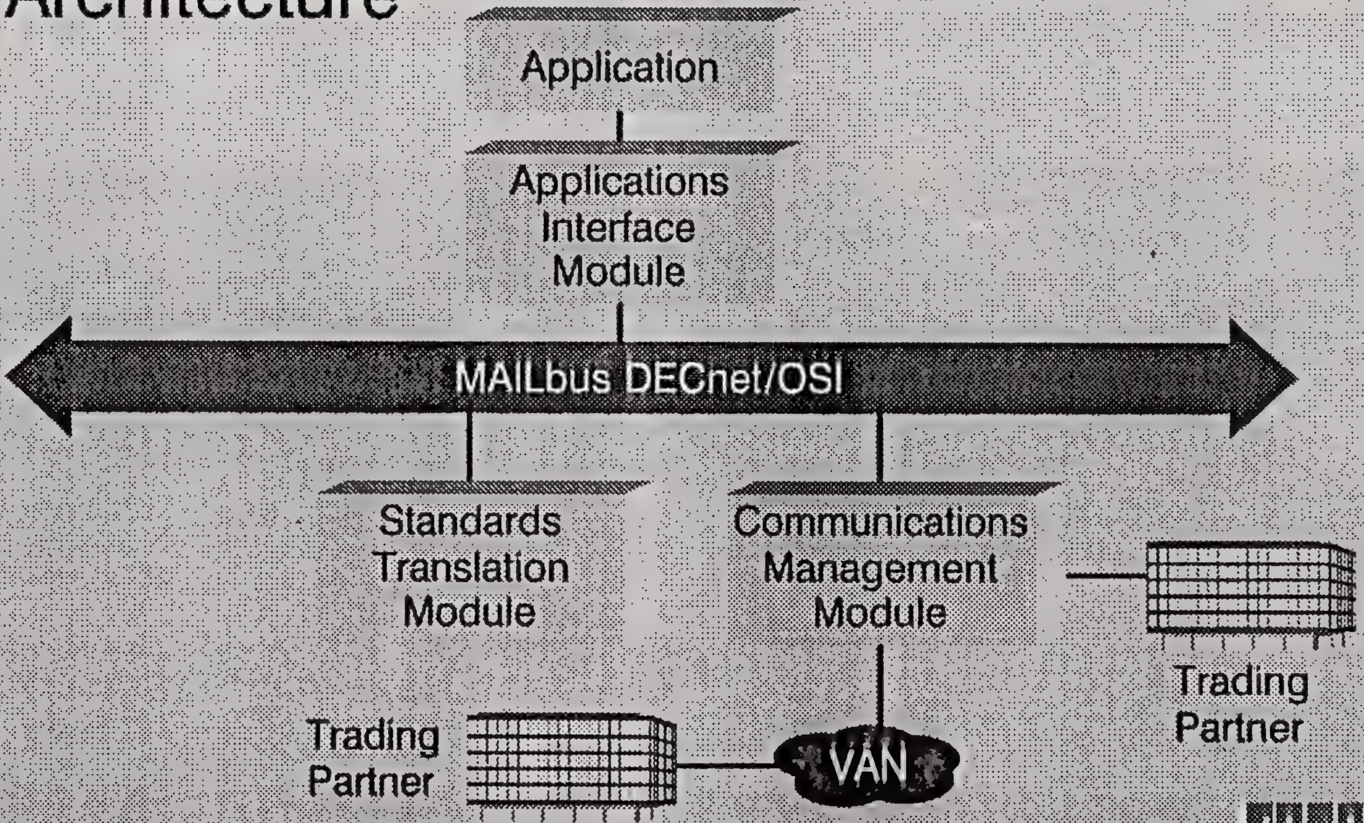
Electronic Store

Corporate Distribution

digital

EDI Gateway

Architecture



Application

Applications Interface Module

MAILbus DECnet/OSI

Standards Translation Module

Communications Management Module

Trading Partner

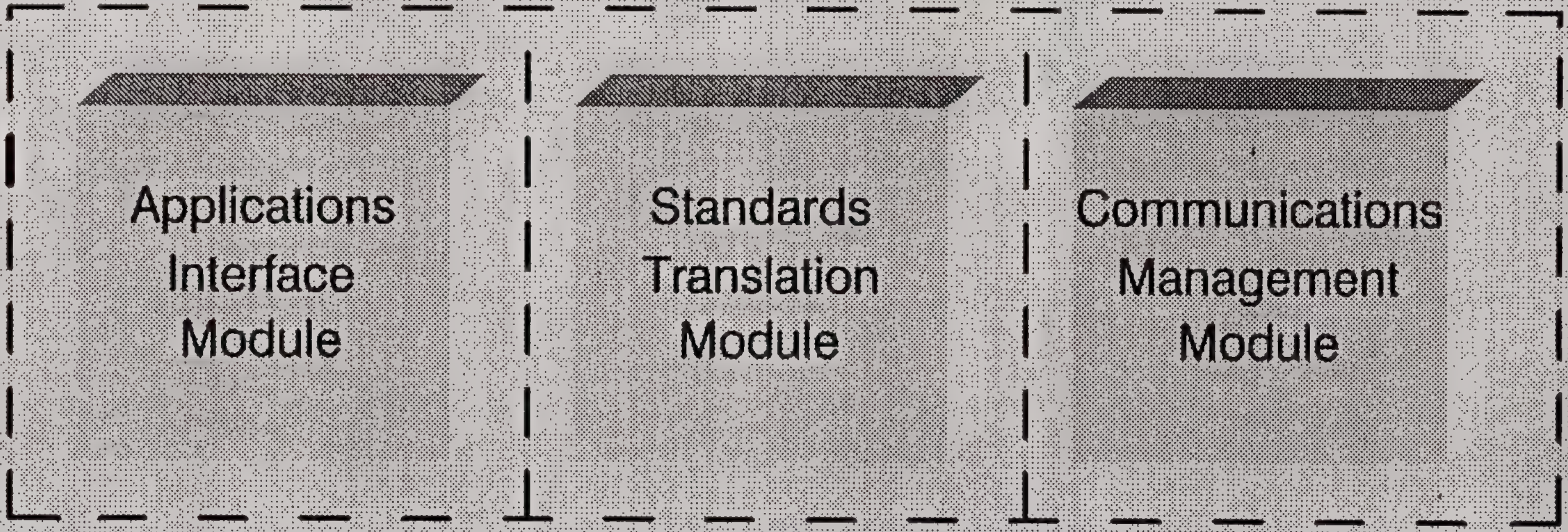
Trading Partner

VAN

digital

EDI Gateway

Providing a Flexible Modular Growth Path



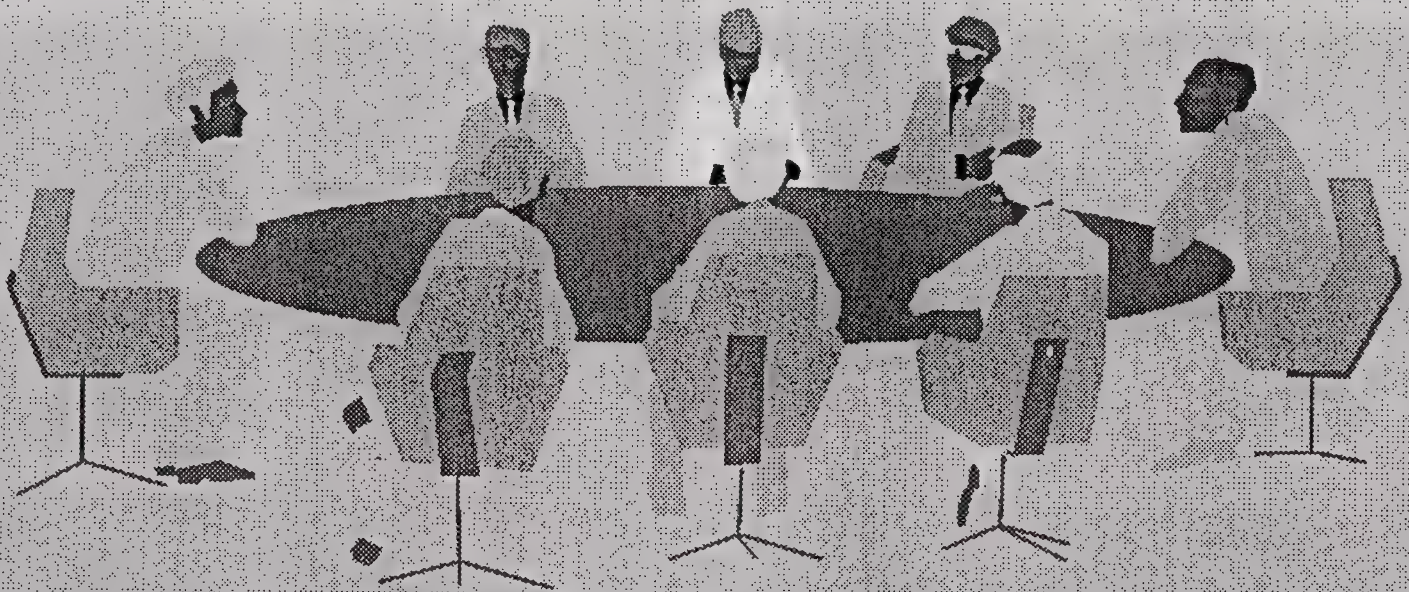
Applications
Interface
Module

Standards
Translation
Module

Communications
Management
Module

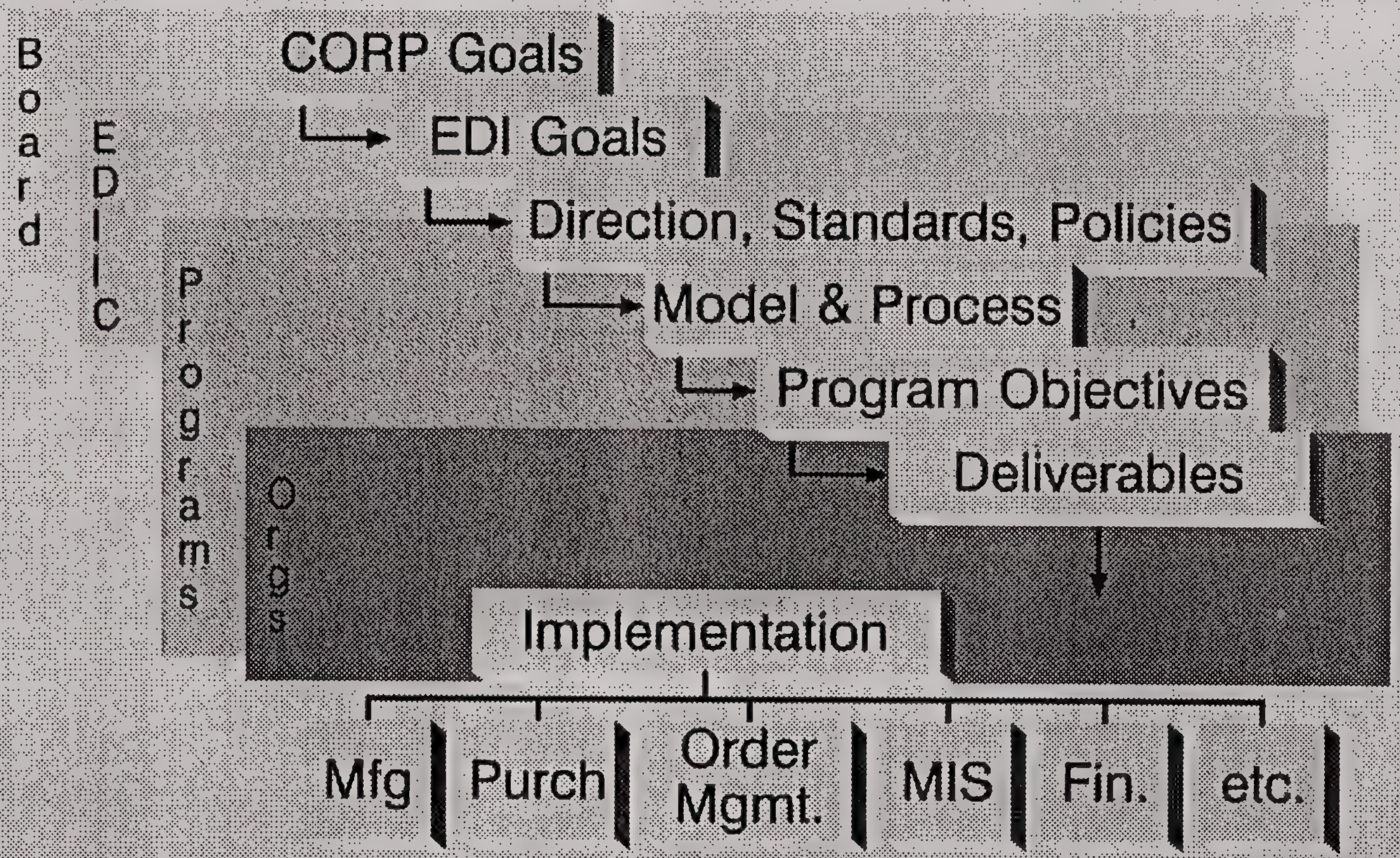
digital

Digital's EDI Board Conducted an Extensive "Make" - "Buy" Analysis of Existing Solutions. . .



. . .Which Resulted in Building Our Own

Digital's EDI Program Structure



Board

EDIIC

Programs

Orgs

CORP Goals

EDI Goals

Direction, Standards, Policies

Model & Process

Program Objectives

Deliverables

Implementation

Mfg

Purch

Order Mgmt.

MIS

Fin.

etc.

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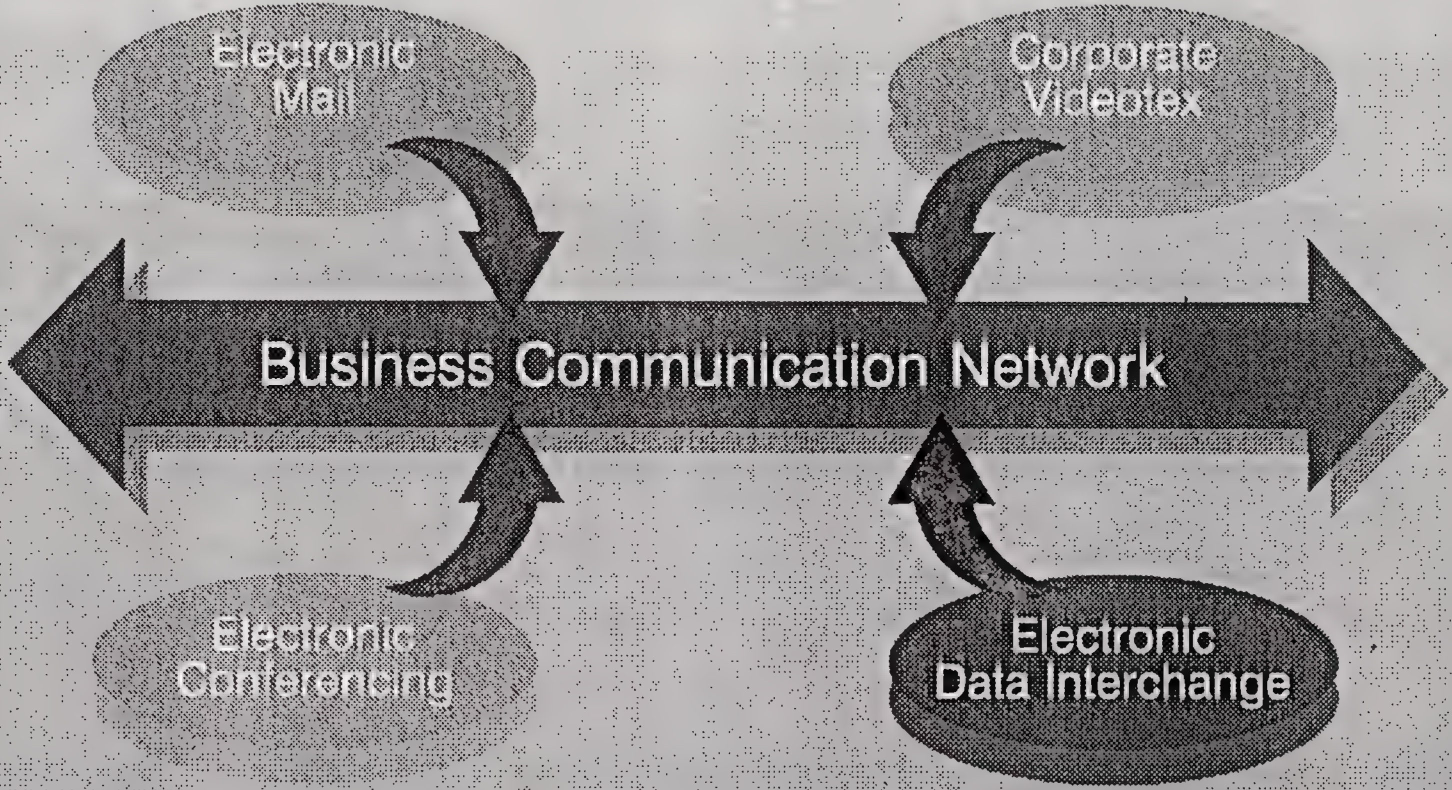
The Digital Approach



Electronic Mail

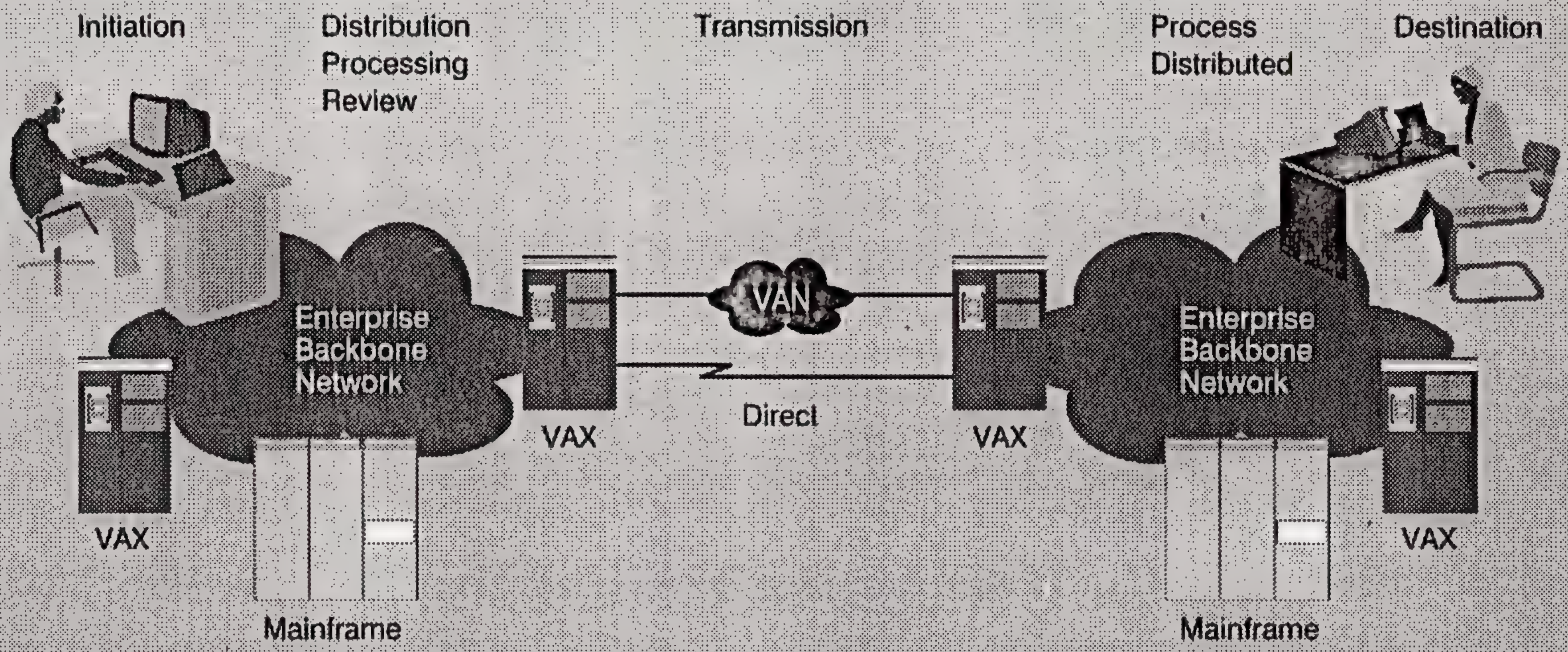
Corporate Videotex

Business Communication Network

Electronic Conferencing

Electronic Data Interchange

Enterprise to Enterprise



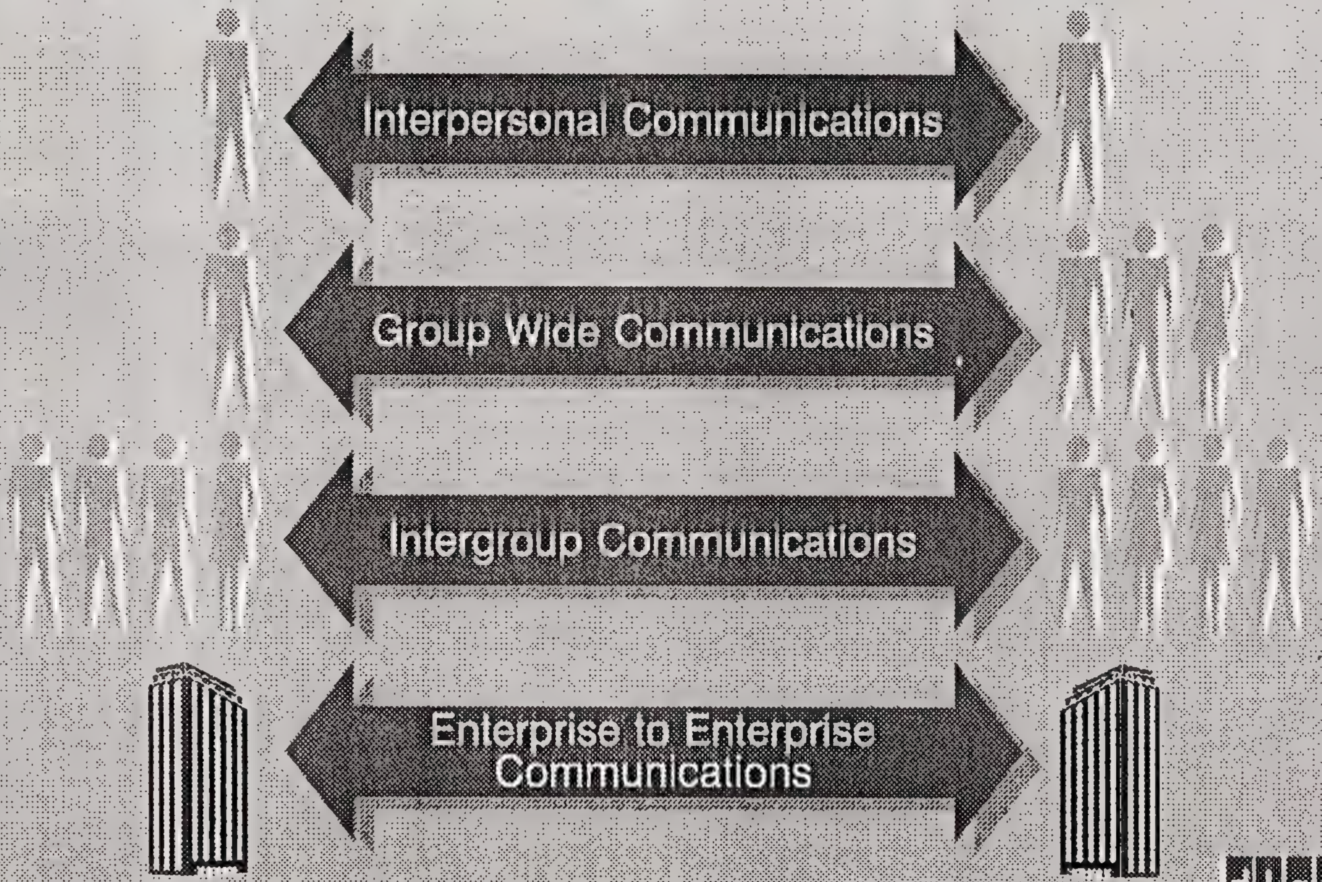
Digital's Committment

Provide Leading Edge Integrated Products and Services Which Solve the Business Communications Needs of Our Customers

- Across the enterprise
- Between enterprises

digital

Business Communication Needs



Interpersonal Communications

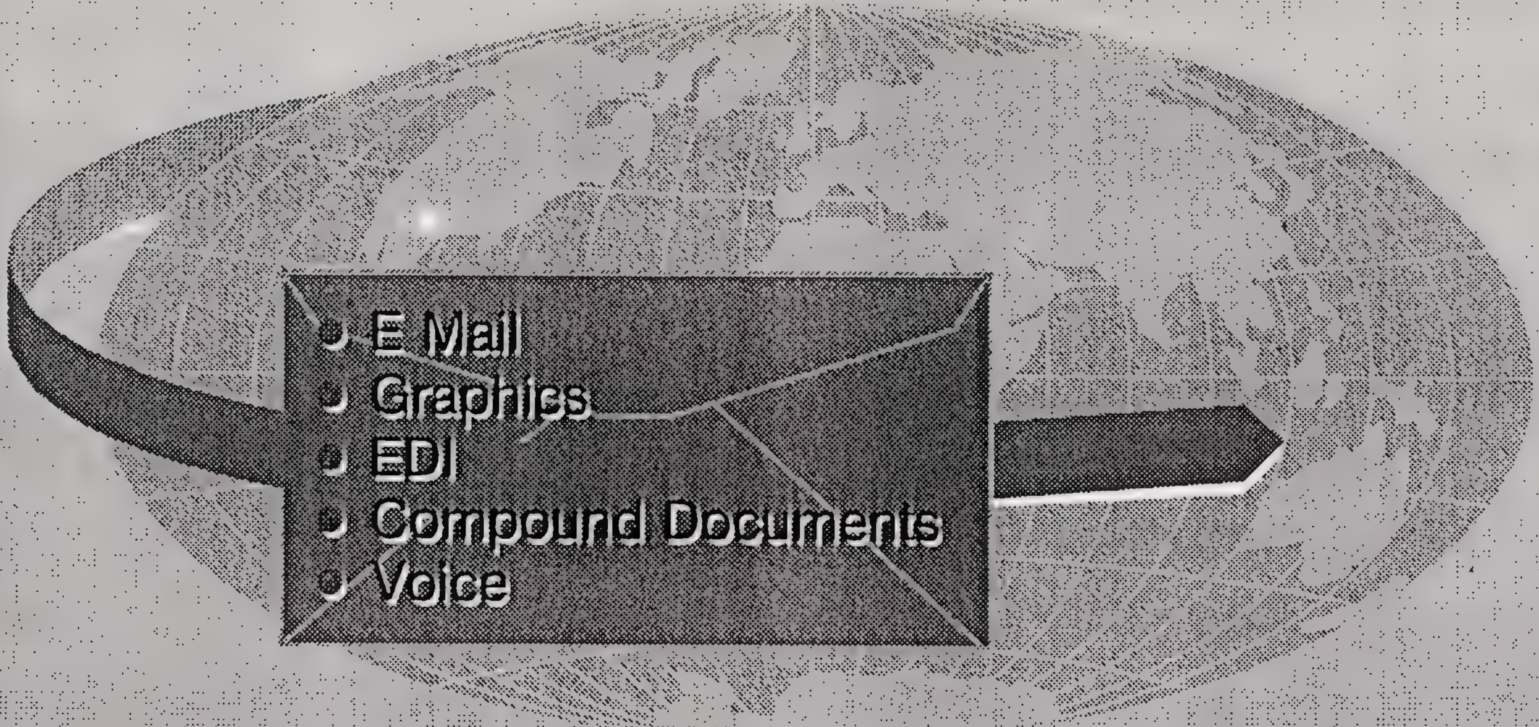
Group Wide Communications

Intergroup Communications

Enterprise to Enterprise Communications

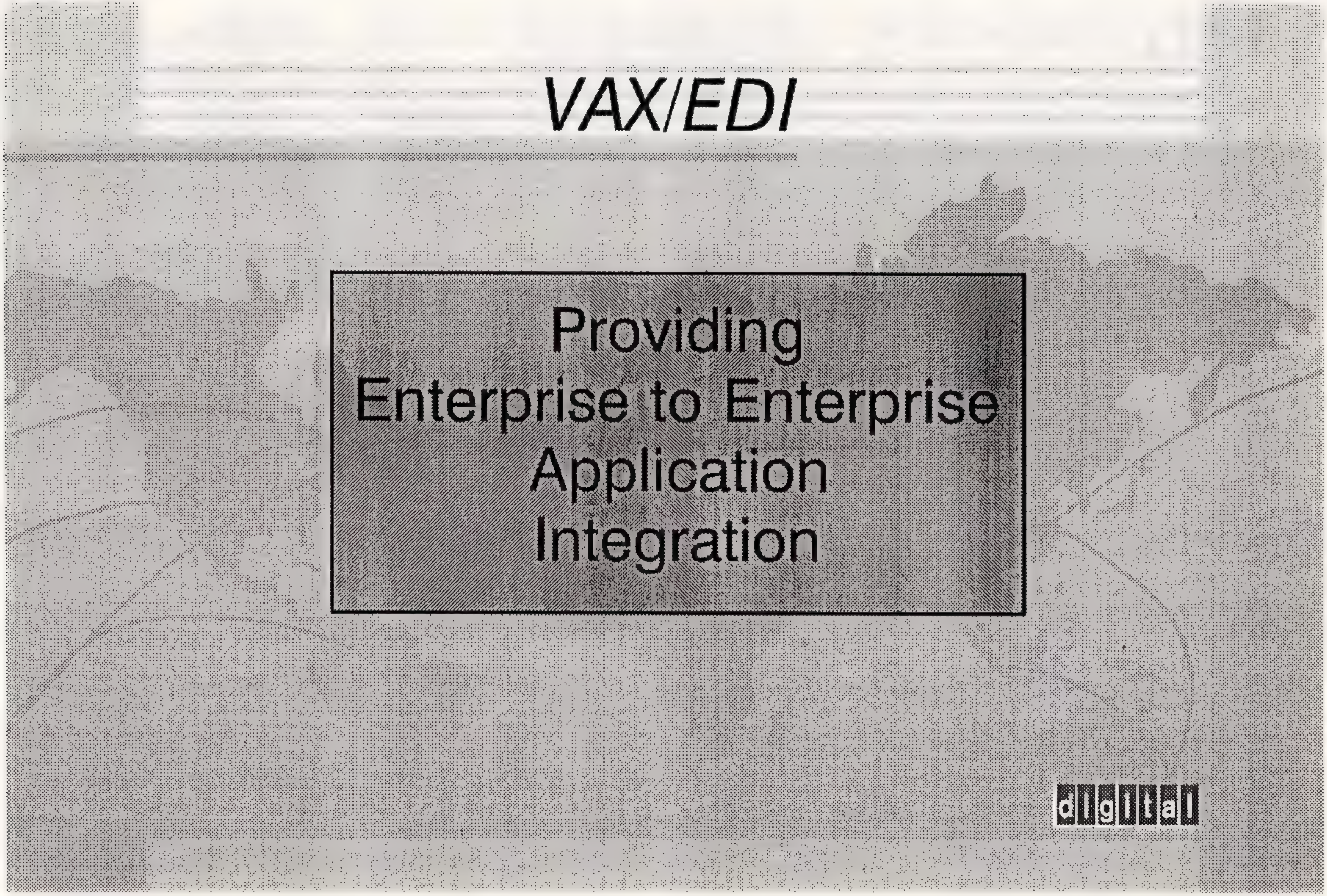
The Digital Approach

Integration



- E Mail
- Graphics
- EDI
- Compound Documents
- Voice

VAX/EDI



Providing
Enterprise to Enterprise
Application
Integration

digital

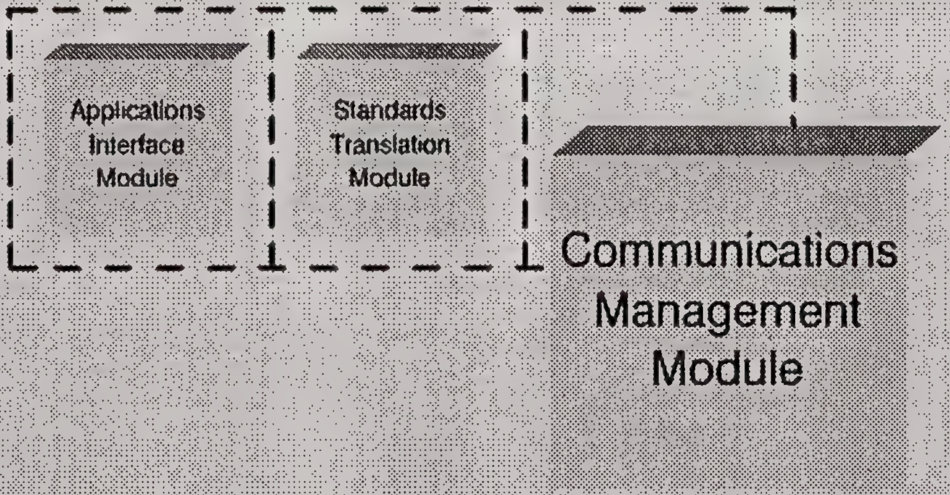
VAX/EDI

Design Criteria

- Modular components for flexible growth path
- Support for national, international and industry-specific EDI standards
- Compliance with industry communications standards
- Full compliment of consulting and support services

VAX/EDI

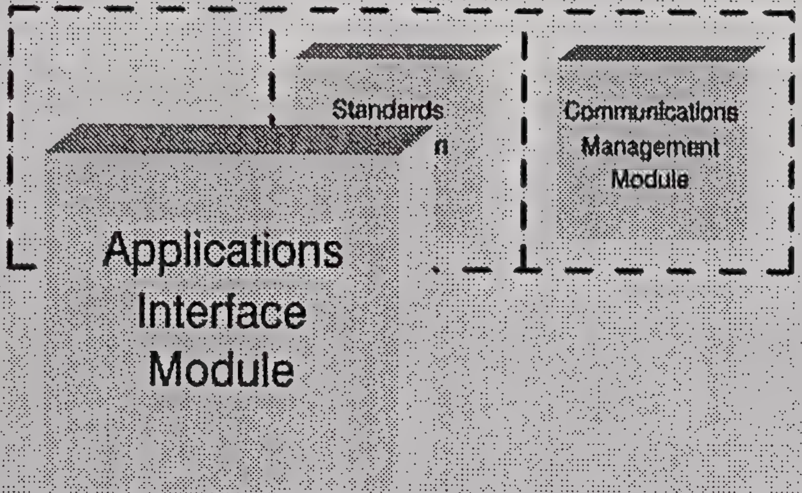
Communications Management Module



- Serves as gateway for sending, receiving and logging of EDI documents with trading partners
  - direct
  - via Value Added Network

VAX/EDI

Application Interface Module


Standards

n

Communications
Management
Module

Applications
Interface
Module

- Published interface routines that facilitate the transfer and routing of documents between applications and the translation module

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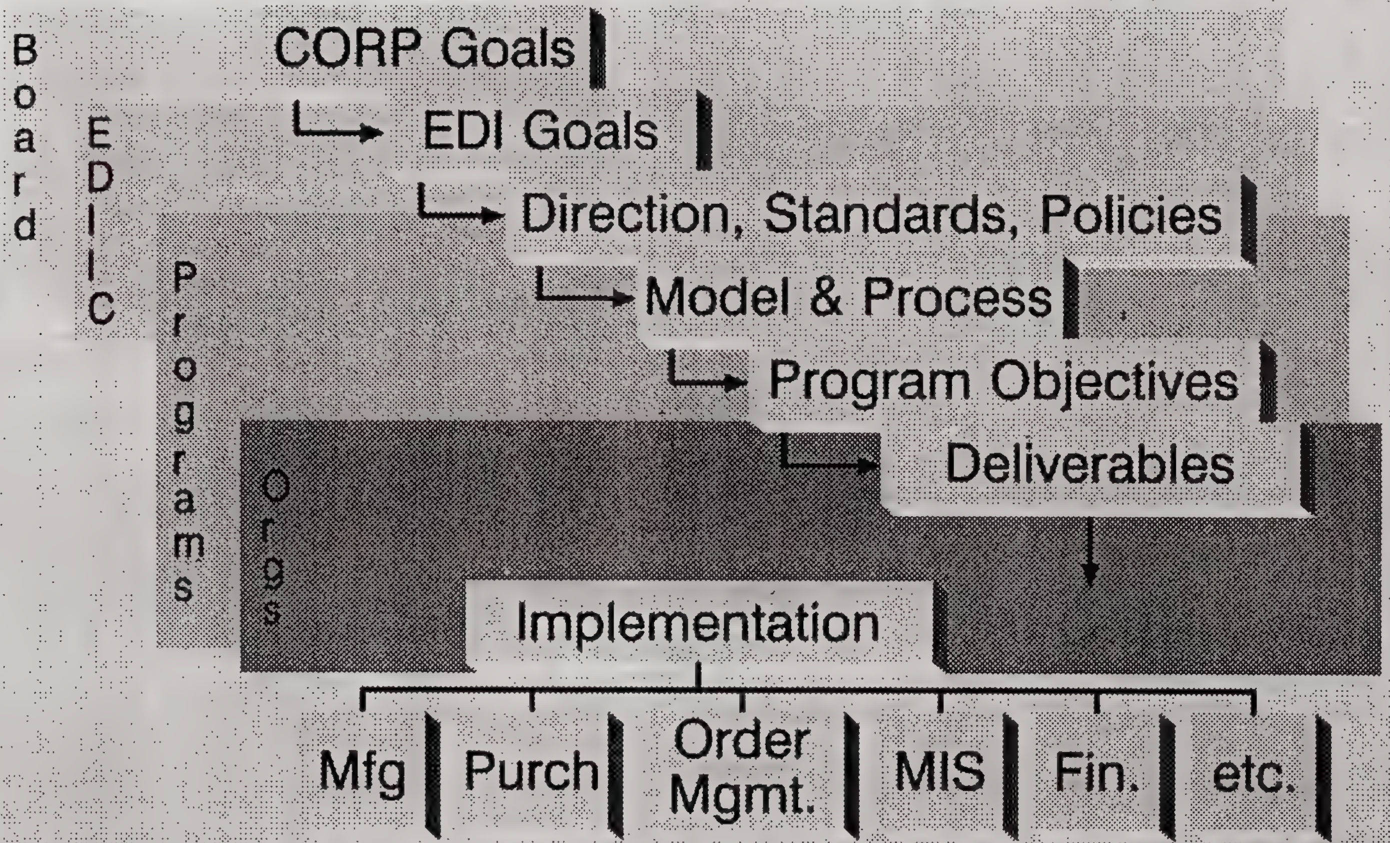
We're Glad to Be a Participant in the EDI Market

The Process

Phase I Opportunity Analysis	Phase II Planning	Phase III System Architecture Design	Phase IV Implementation
Results • Go/no go decision • EDI strategy and broad objectives	• Specific objectives • Action-oriented work plan • Resource requirements	• Decisions/ specifications - Software - Hardware - Communications	• Pilot • Roll-out plan

Digital's EDI Program Structure



Board

EDIC

Programs

Orgs

CORP Goals

→ EDI Goals

→ Direction, Standards, Policies

→ Model & Process

→ Program Objectives

→ Deliverables

Implementation

- Mfg
- Purch
- Order Mgmt.
- MIS
- Fin.
- etc.

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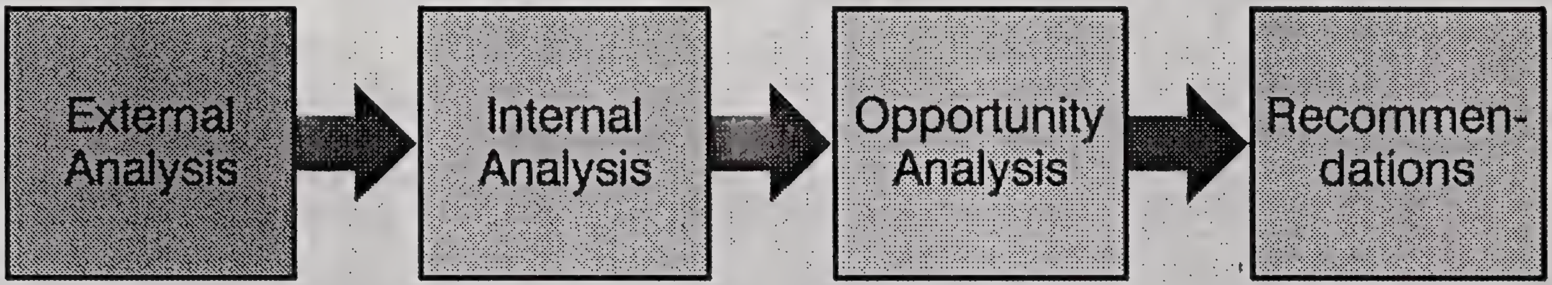
The Opportunity Analysis



External Analysis → Internal Analysis → Opportunity Analysis → Recommendations

External Analysis

- Trading partner requirements
- Competitor assessment
- Industry standards

Internal Analysis

- Strategic objectives
- Operational procedures
- Systems and technology

Opportunity Analysis

- Priorities
- Impacts: external, internal
- Risks
- Strategy alternatives

Recommendations

- Opportunities and priorities
- Channel relationships
- Competitive positioning
- Benefits
- Risks
- EDI strategy

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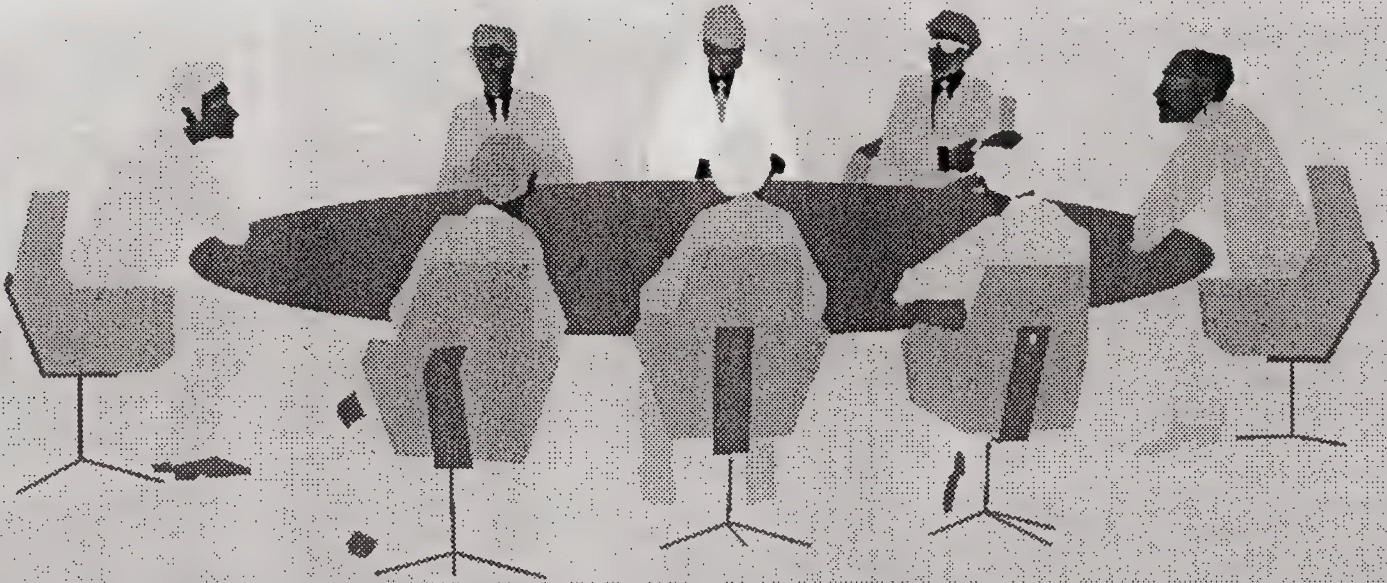
Digital's EDI Board Conducted an Extensive "Make" - "Buy" Analysis of Existing Solutions. . .



. . .Which Resulted in Building Our Own

Key Factors

- Strategic importance of EDI
  - To internal operations
  - Externally to customers and suppliers
- EDI was viewed as an extension to what we do best
  - Network based applications
  - Systems integration
- More controlled environment for product and applications integration
- Flexible growth path
- Solutions in market focused on translation rather than the applications environment

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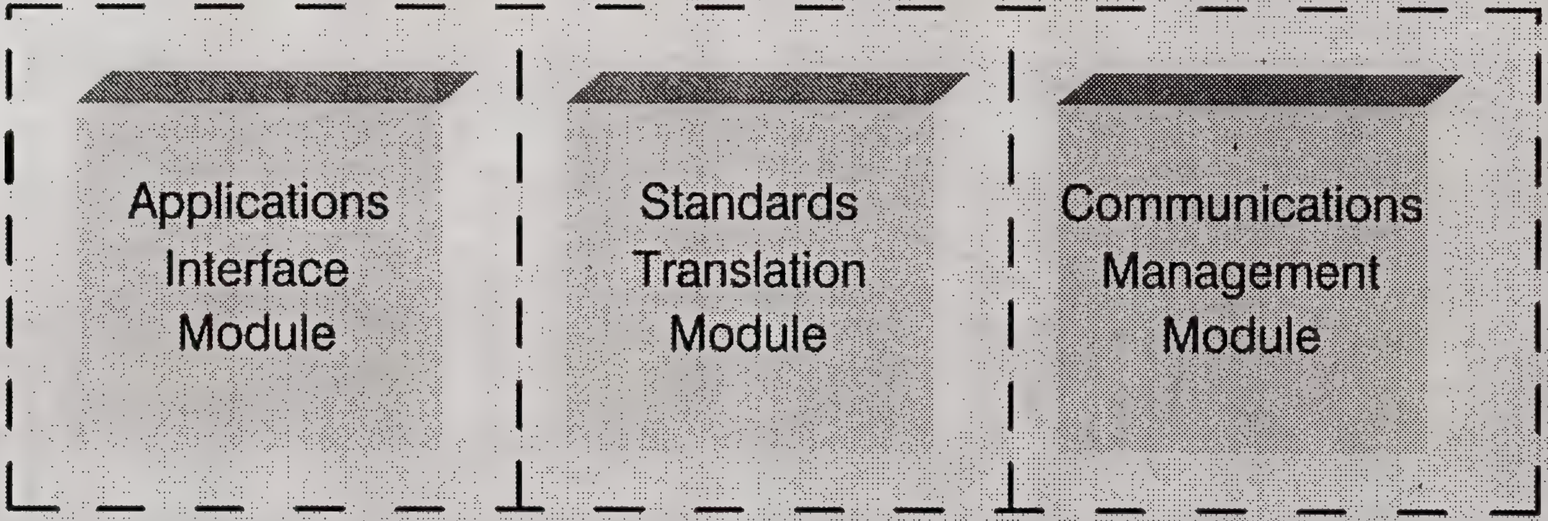
EDI Gateway

Providing a Flexible Modular Growth Path


Applications Interface Module
Standards Translation Module
Communications Management Module

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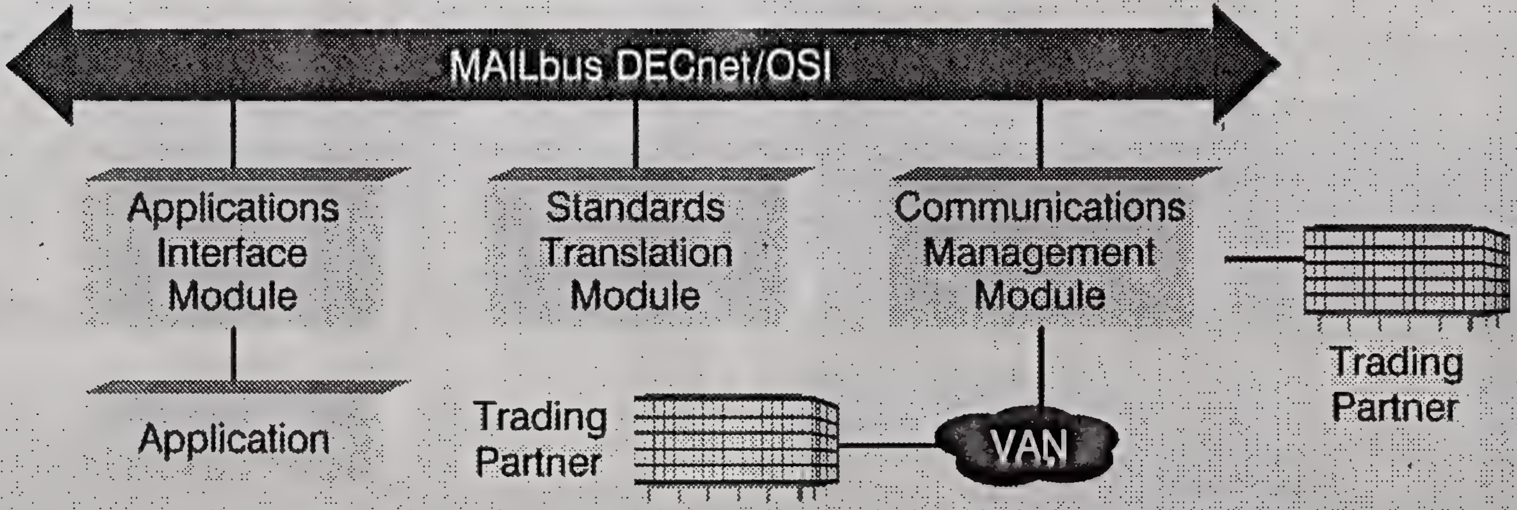
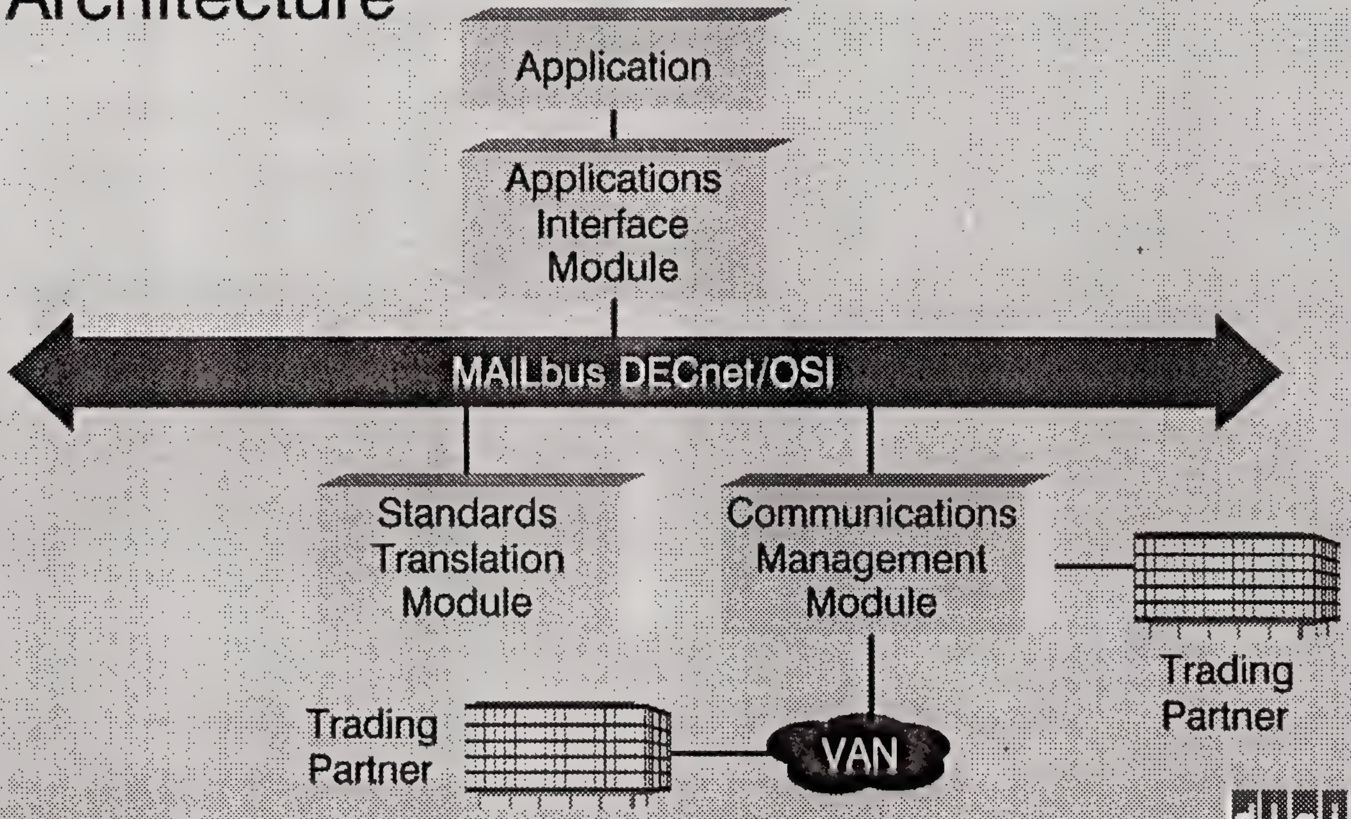
EDI Gateway

Architecture


MAILbus DECnet/OSI
Applications Interface Module
Standards Translation Module
Communications Management Module
Application
Trading Partner
VAN
Trading Partner

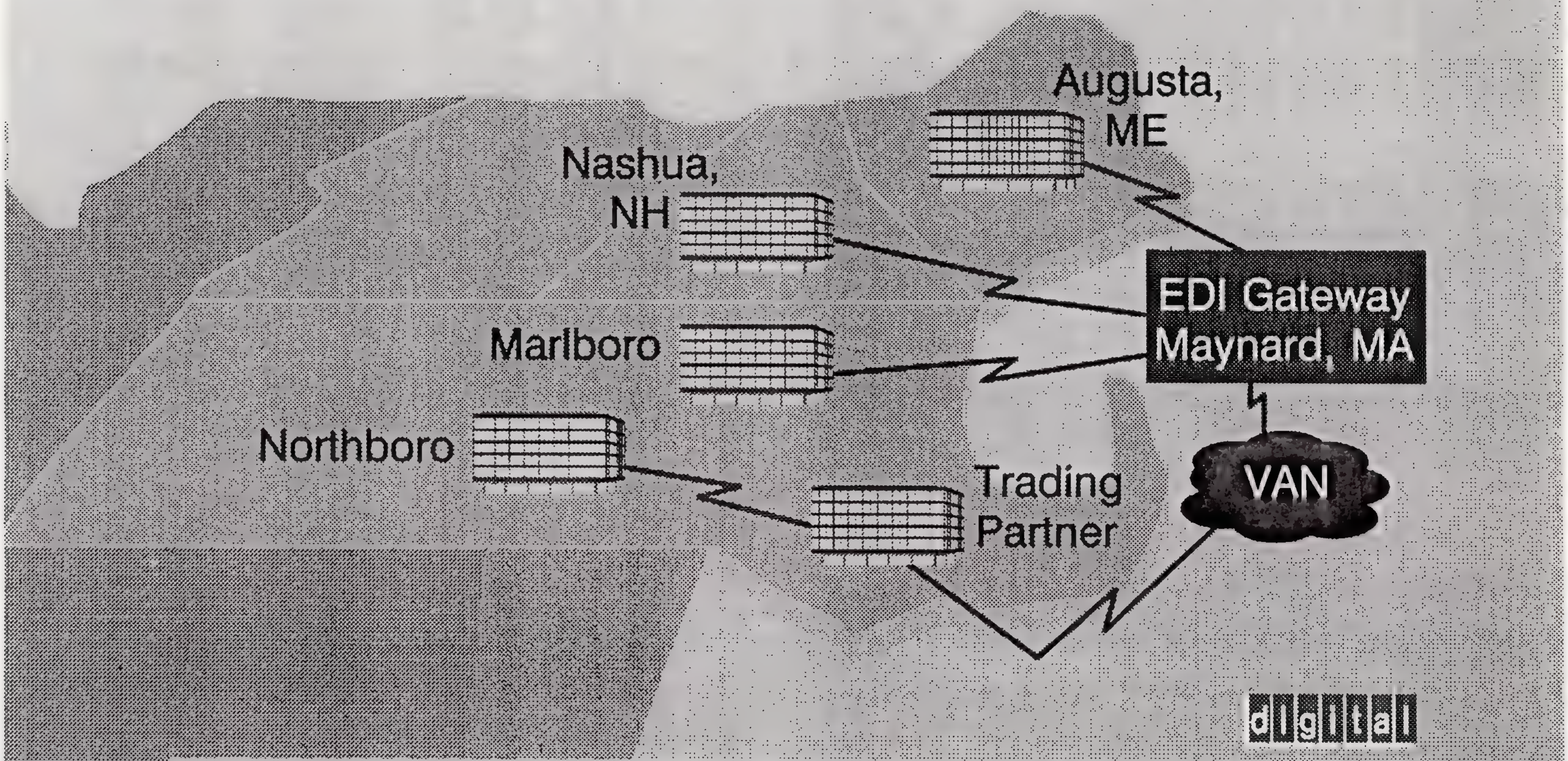
EDI Gateway

Architecture



Application
Applications Interface Module
MAILbus DECnet/OSI
Standards Translation Module
Communications Management Module
Trading Partner
Trading Partner
VAN

Digital's Implementation Today



Augusta, ME

Nashua, NH

Marlboro

Northboro

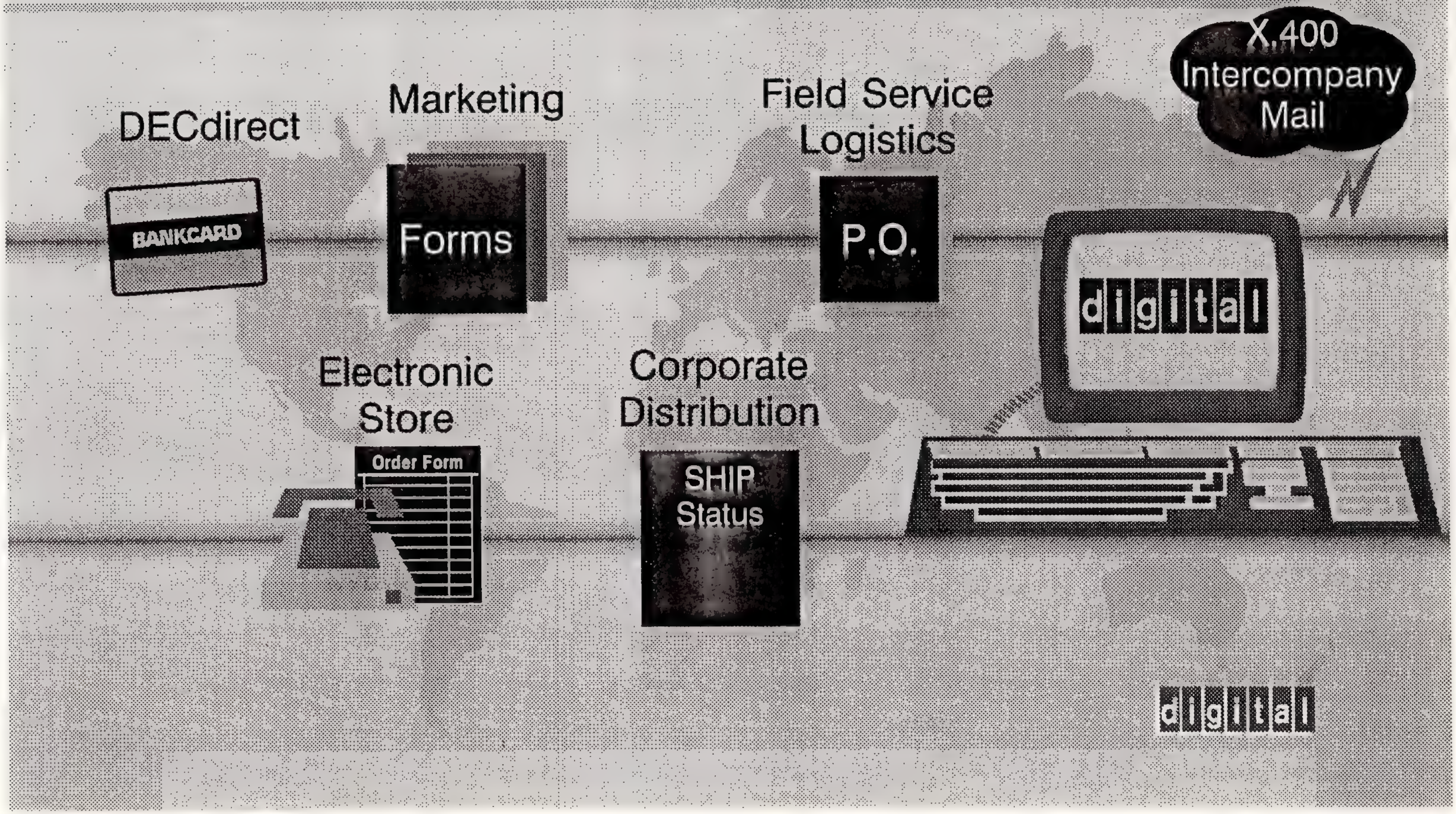
EDI Gateway Maynard, MA

VAN

Trading Partner

digital

Digital Internal EDI Applications



DECdirect

Marketing

Field Service
Logistics

X.400
Intercompany
Mail

Electronic
Store

Corporate
Distribution

digital

Early "EDI" Programs (1983)

Digital's Electronic Connection

Electronic Store			EDI	Special Customer Services	Electronic Forms/Mail
• General Info	• Product and Services Specifications and Demos	• Interactive Quoting and Ordering	• Quote • P.O. • P.O. Change • Acknow. • Invoice • Remittance Advice	• Configuration Aids • Special Terms • Financials	• Customer to Sales • Communications

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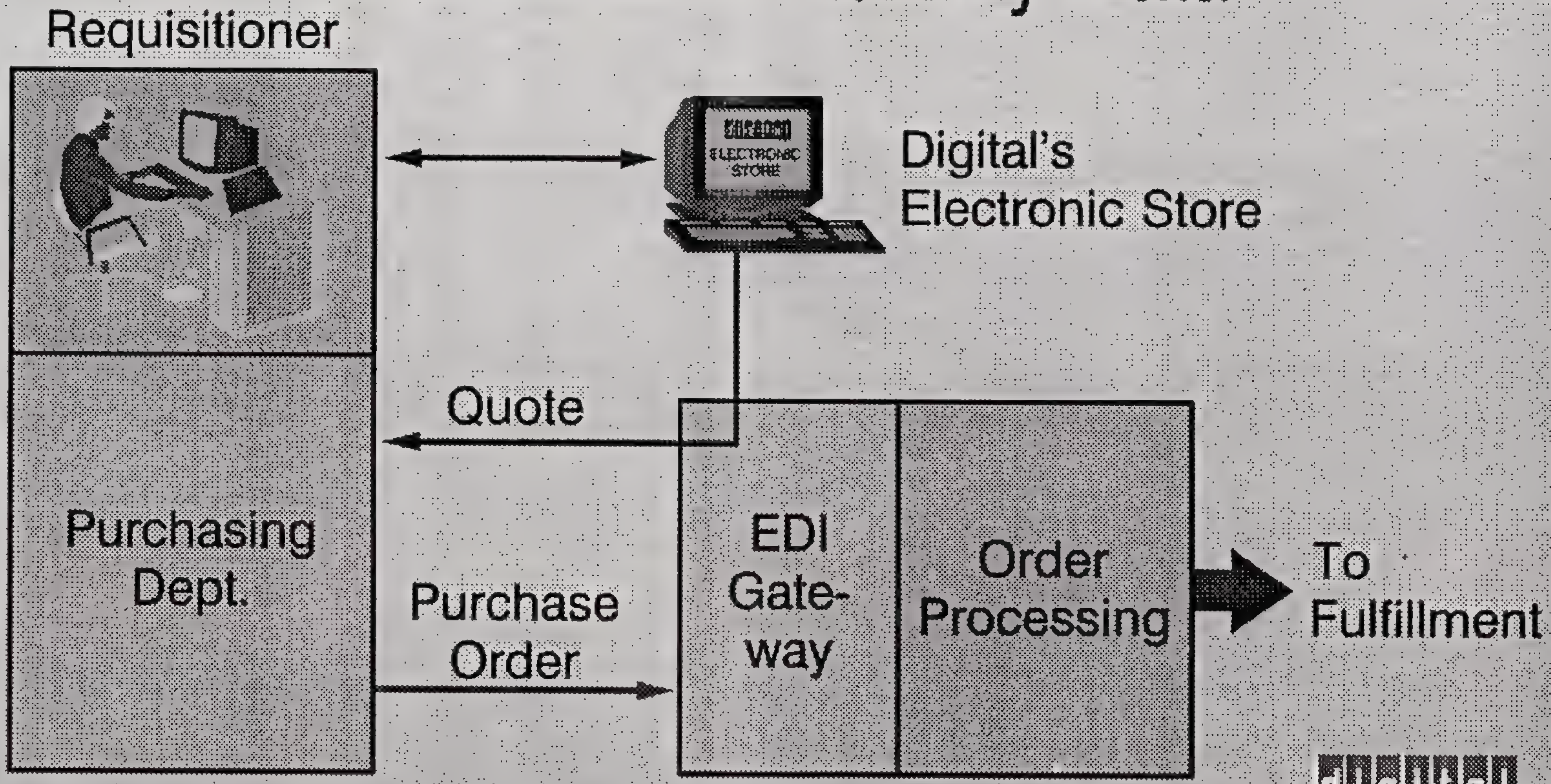
EDI Sales/Order Management

The Need for Quality Data



Requisitioner

Digital's Electronic Store

Quote

Purchasing Dept.

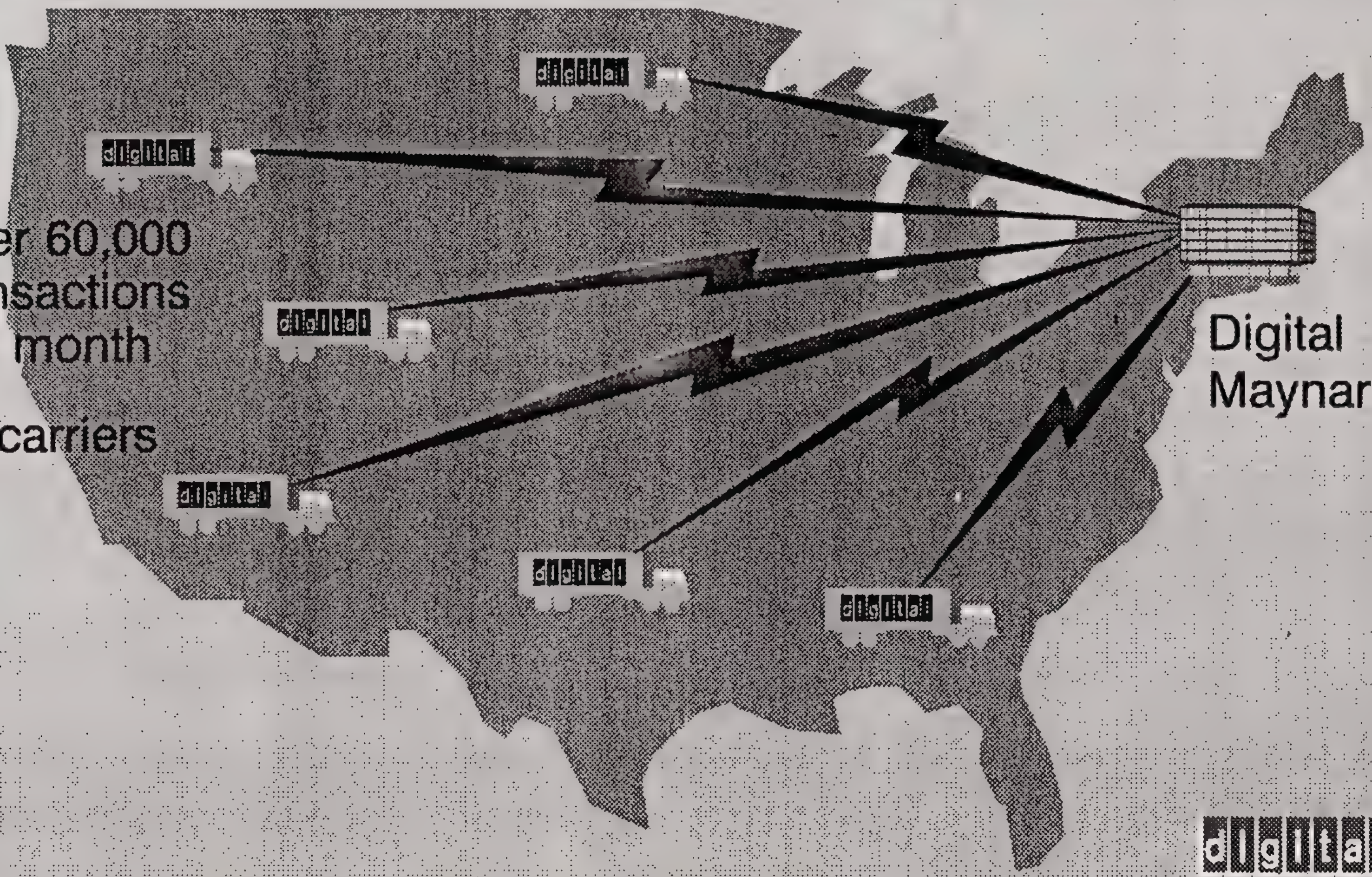
Purchase Order

EDI Gate-way

Order Processing

To Fulfillment

Distribution
Accurate Carrier Location



- Over 60,000 transactions per month
- 35 carriers

Benefits Realized by Digital

- Reduction in preparing and issuance of purchase orders from 2 weeks to 3 days
- Reduction in p.o. acknowledgement turn around time from 5 weeks to 3 days
- Reduction in cost of preparing a p.o. from $125.00 to less than $32.00
- Reduction in pre-expediting purchase orders by buyers and planners by 12 hours per week
- Significant inventory reduction

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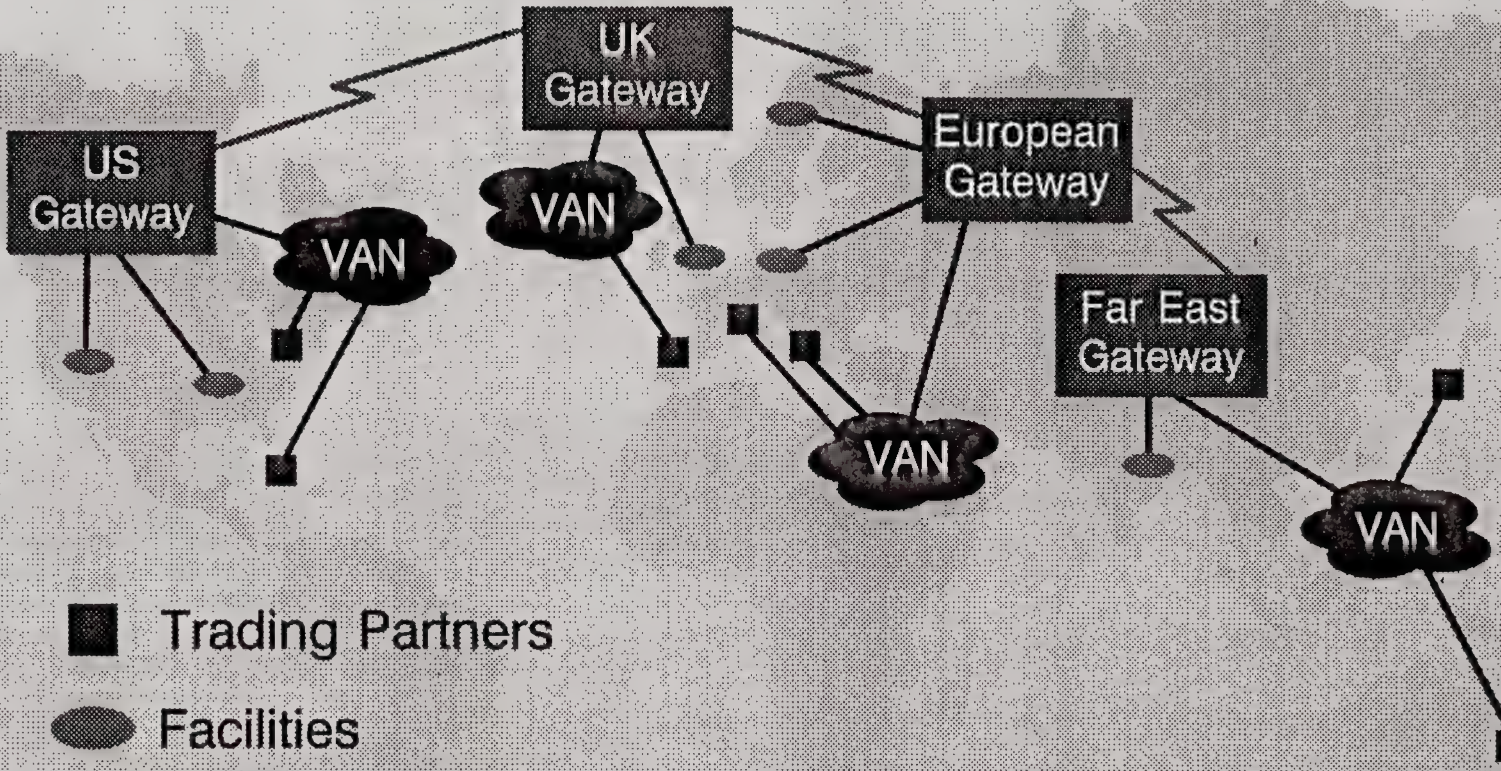
Digital's Implementation Tomorrow

Distributed Regional International Gateways



■ Trading Partners

⬬ Facilities

Digital's Internal EDI Implementation Goals

By 1991:

- 80% of all purchase orders, acknowledgements, forecasts, releases, invoices and payments to be transmitted electronically using EDI
- Reduce the cost per purchasing transaction by over 85%
- Reduce and redeploy the number of personnel dedicated to procurement activity by 30%
- Provide better control while reducing material acquisition costs by over $200 million
- Implement EDI in 30 largest manufacturing facilities

Today

Digital Is Committed to the Use of EDI With It's Trading Partners to:

- Achieve mutual operating efficiencies and cost savings
- Support key business strategies
  - i.e., Just-In-Time, Enterprise-to-enterprise information sharing
- Meet rapidly changing competitive environments
- Enhance "Ease of doing business"

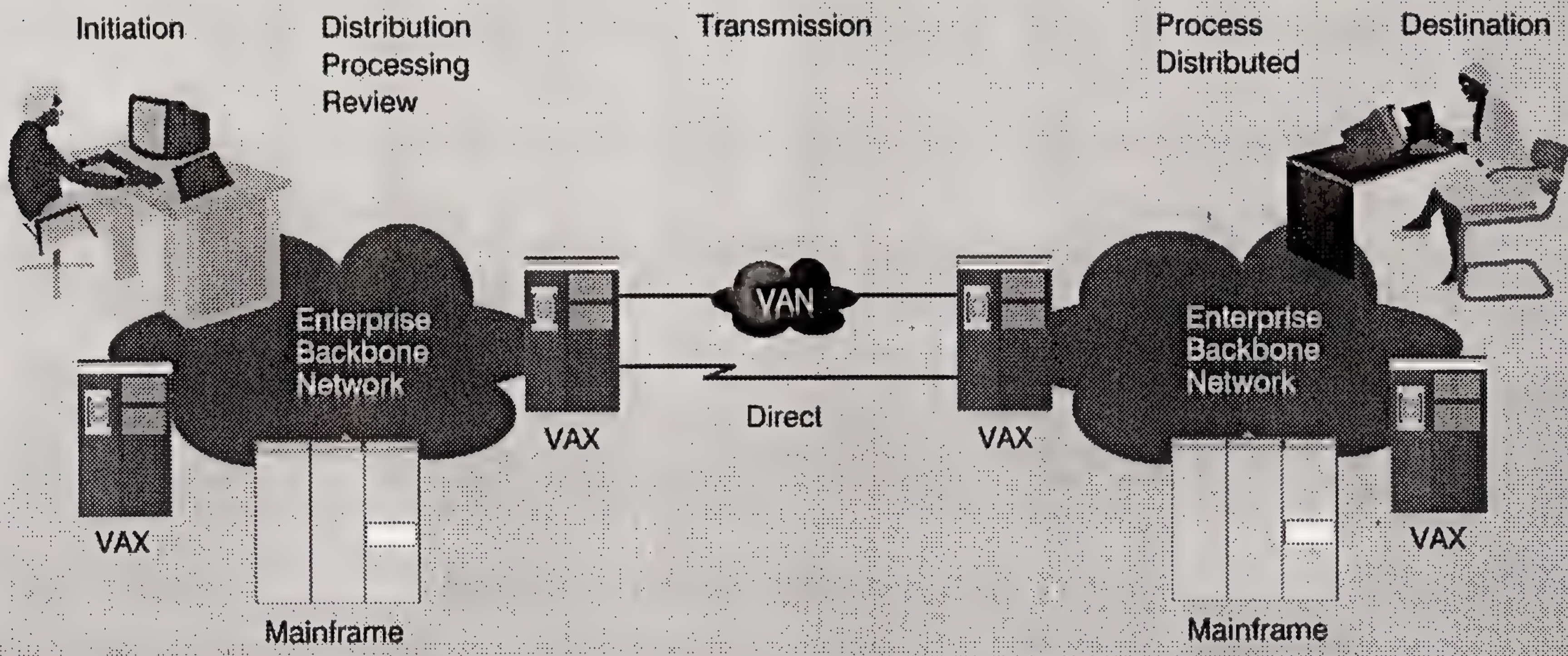
digital

Digital's Committment

Provide Leading Edge Integrated Products and Services Which Solve the Business Communications Needs of Our Customers

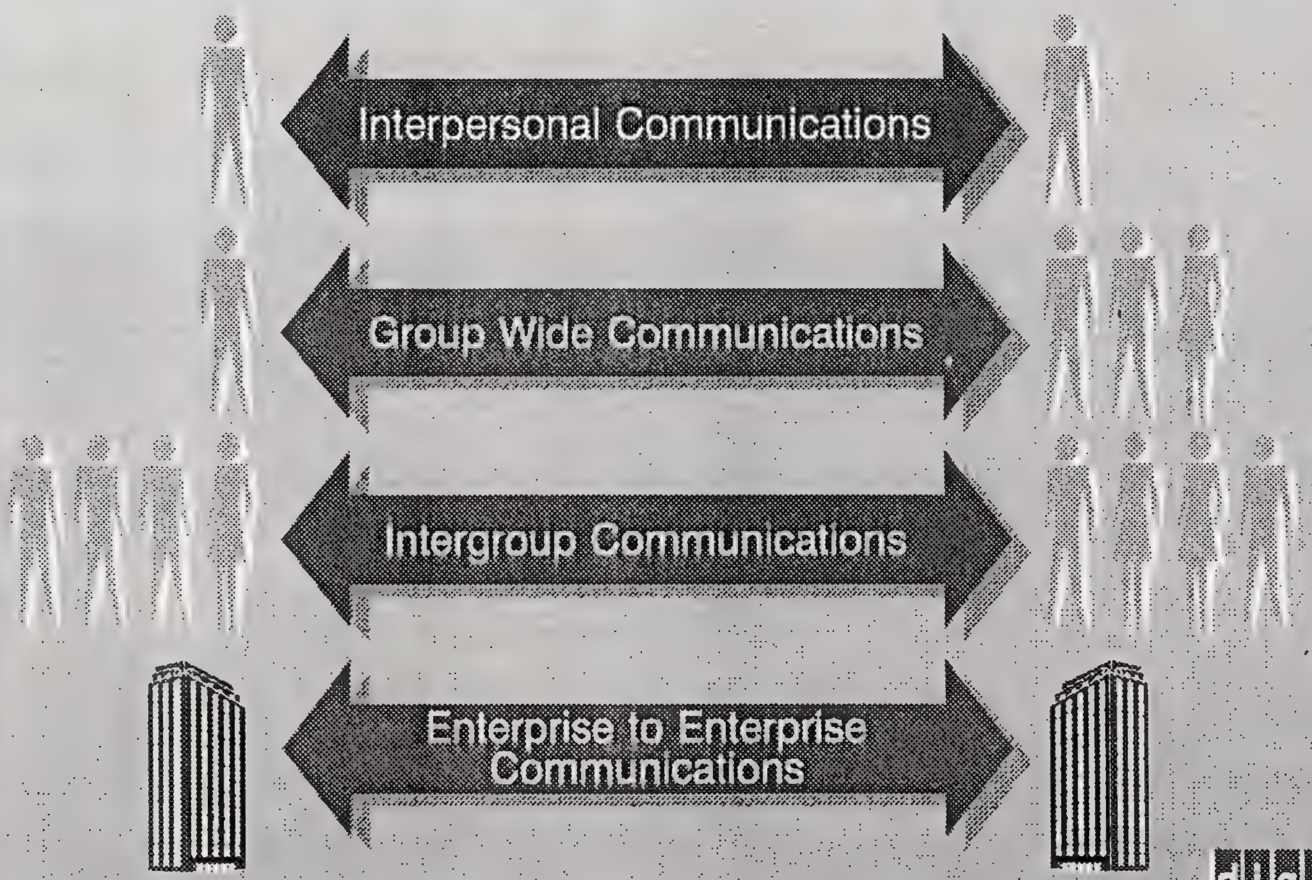
- Across the enterprise
- Between enterprises

Enterprise to Enterprise



digital

Business Communication Needs



Interpersonal Communications

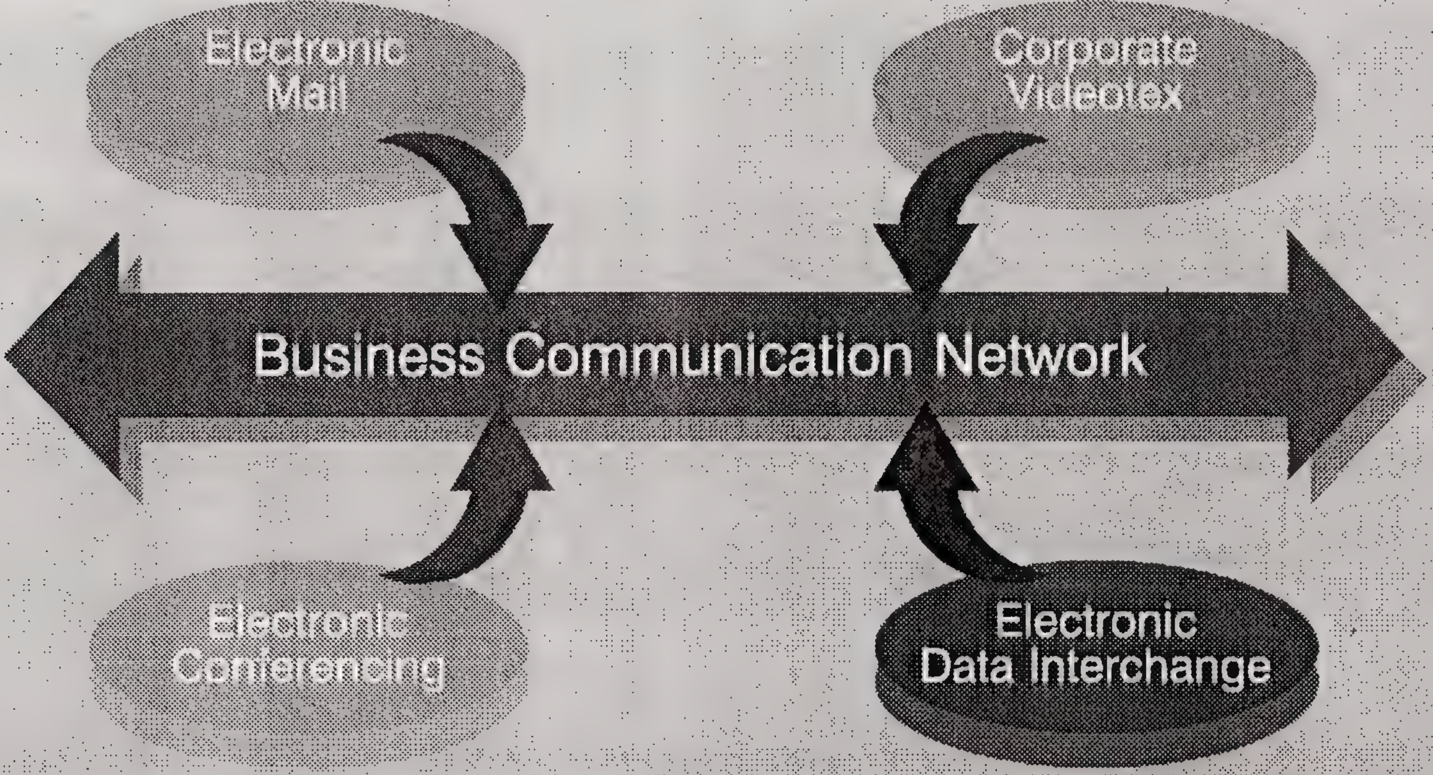
Group Wide Communications

Intergroup Communications

Enterprise to Enterprise Communications

digital

The Digital Approach



Electronic Mail

Corporate Videotex

Business Communication Network

Electronic Conferencing

Electronic Data Interchange

digital

The Digital Approach

Integration

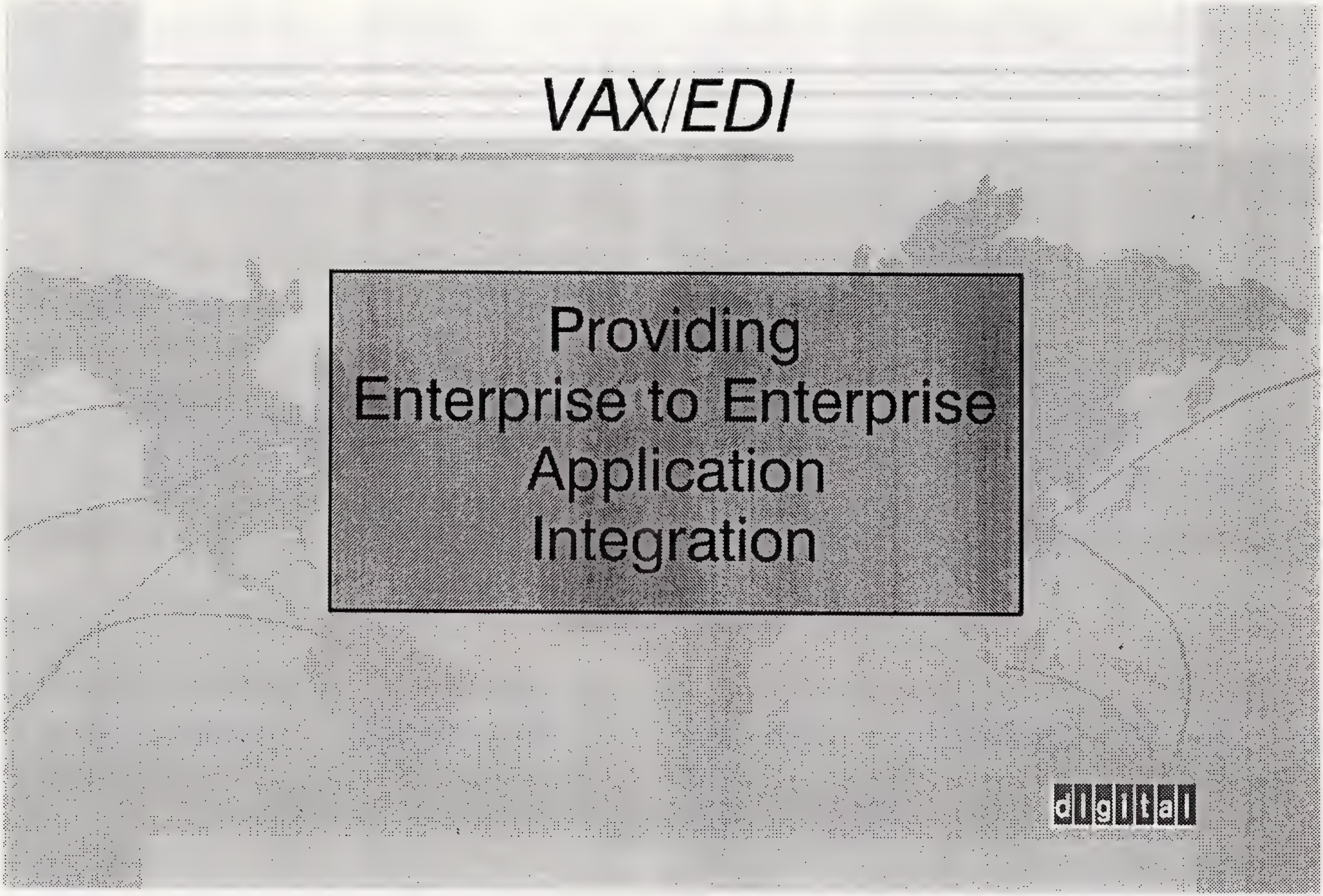
- E Mail
- Graphics
- EDI
- Compound Documents
- Voice

digital

Digital Solutions

Electronic mail	- MAILbus™
Corporate videotex	- VAX VTX™
Electronic conferencing	- VAX Notes™
EDI	- VAX/EDI™

VAX/EDI



Providing Enterprise to Enterprise Application Integration

VAX/EDI

Design Criteria

- Easy to use, implement and maintain on a global basis
- Reliable service in a secure environment
- VAX-based platform for EDI standards translation and communication
- Ease of application integration
- Multi-vendor and multi-VAN connectivity

VAX/EDI

Design Criteria

- Modular components for flexible growth path
- Support for national, international and industry-specific EDI standards
- Compliance with industry communications standards
- Full compliment of consulting and support services

VAX/EDI

Providing a Flexible Modular Growth Path

Applications Interface Module

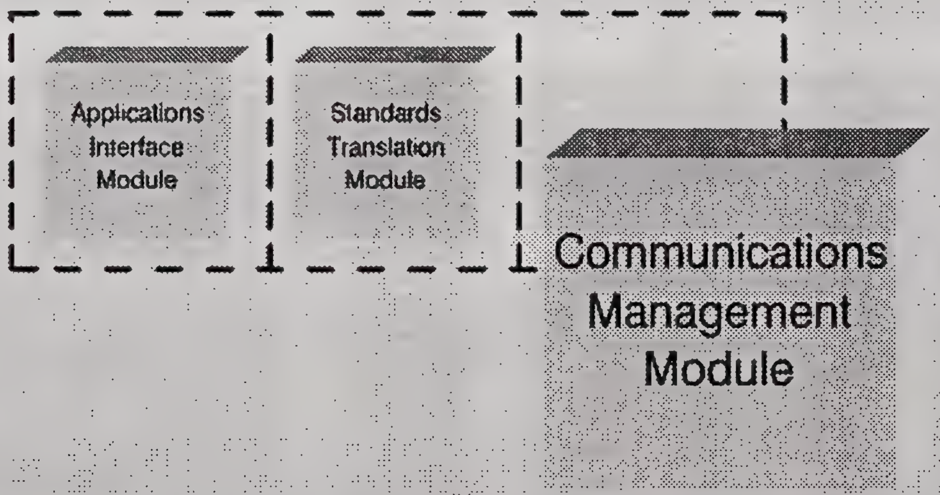
Standards Translation Module

Communications Management Module

digital

VAX/EDI

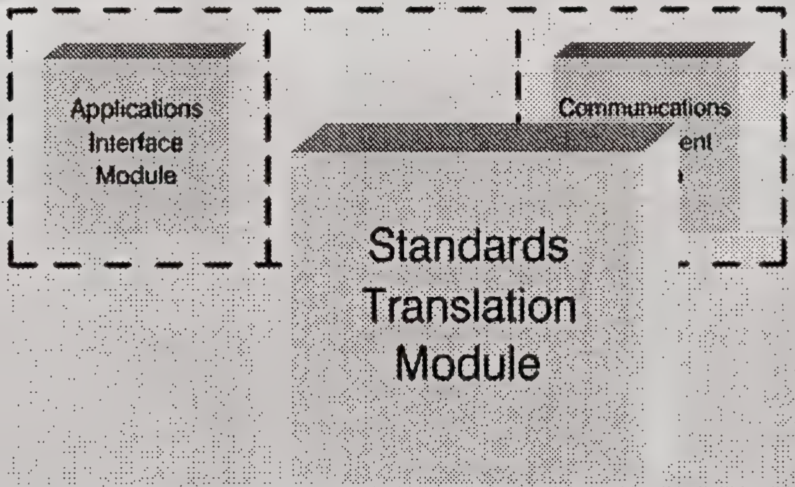
Communications Management Module


Applications Interface Module
Standards Translation Module
Communications Management Module

- Serves as gateway for sending, receiving and logging of EDI documents with trading partners
  - direct
  - via Value Added Network

VAX/EDI

Standard Translation Module



Applications
Interface
Module

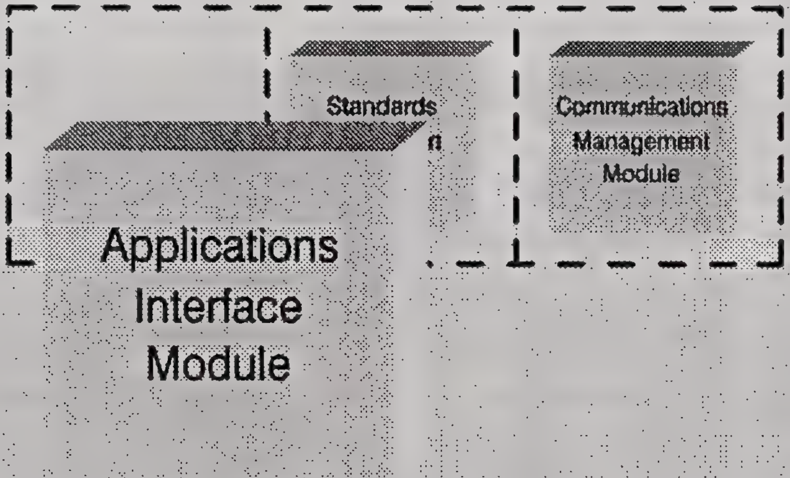
Communications
ent

Standards
Translation
Module

- Provides translation management function
  - from internal to external document standard
  - from external to internal document standard

VAX/EDI

Application Interface Module

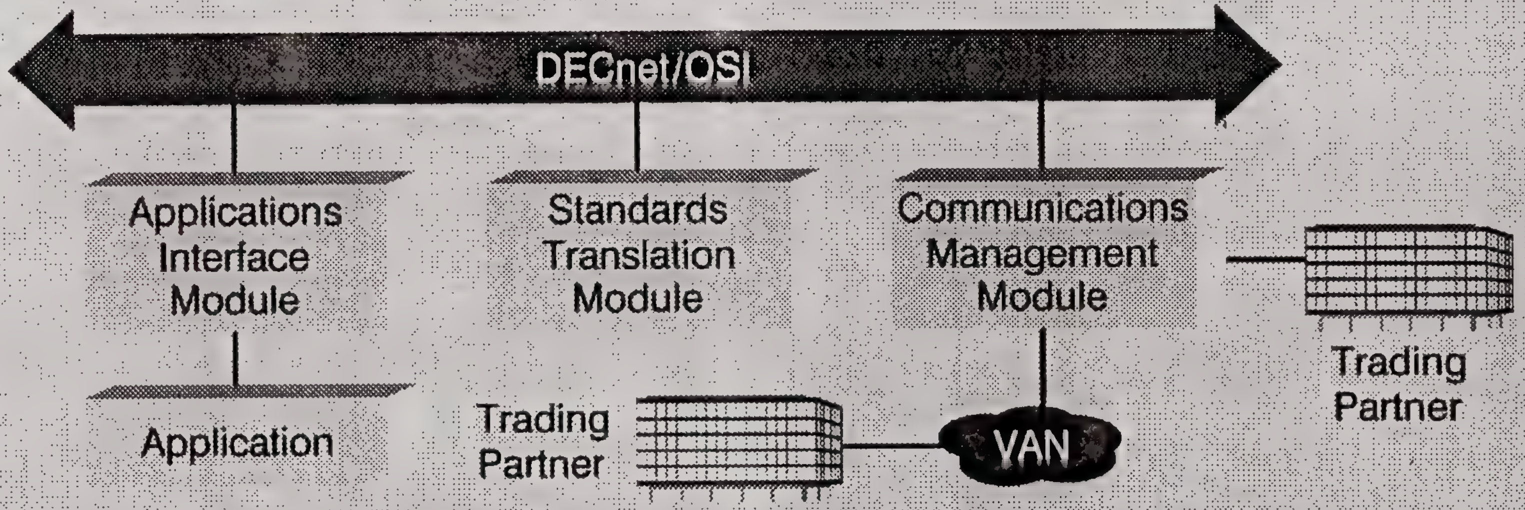


- Published interface routines that facilitate the transfer and routing of documents between applications and the translation module

digital

VAX/EDI

Architecture


DECnet/OSI
Applications Interface Module
Standards Translation Module
Communications Management Module
Application
Trading Partner
VAN
Trading Partner

digital

digital

We're Glad to Be a Participant in the EDI Market

William M. Carlisle
Manager, EDI Electronic Business Document Services Marketing
DIGITAL EQUIPMENT CORPORATION

Bill is the Manager of EDI Product Marketing in Digital's Business and Office Information Systems Group located in Nashua, NH. He is responsible for developing Digital's global EDI Product Marketing strategies, which include the development of systems and programs to facilitate the automated distribution and management of business documents and data between and within enterprises. He has been with Digital for 10 years and has held senior marketing positions in the Telecommunications and Office Systems Products Groups as well as numerous management and consulting positions in Digital's corporate MIS organization. He has a BS degree in marketing.

REAL-LIFE USER CASE STUDIES

Donald Zink
Systems Product Mananger
VWR Scientific

INPUT®

VWR SCIENTIFIC

- NATIONAL DISTRIBUTOR OF LABORATORY PRODUCTS AND SUPPLIES.
- HEADQUARTERED IN SAN FRANCISCO.
- 30 SALES OFFICES.
- 5 REGIONAL DISTRIBUTION CENTERS.
- $400 MILLION ANNUAL SALES.
- CATALOG 50,000 ITEMS.
- 1, 000 SUPPLIERS.
- 70,000 CUSTOMERS.

LABORATORY MARKETPLACE

- MANUFACTURING R & D.
    -CHEMICALS

    -AEROSPACE

    -ELECTRONICS

    -METALS

    -PHARMACEUTICAL

    -ETC., ETC.
- GOVERNMENT.
- EDUCATION.
- MEDICAL.

VWR CUSTOMER SYSTEMS

- INTEGRATED - 1976
- TAPE BILLING - 1976
- INTERACTIVE
    - VIPS (TTY) - 1976
    - VISTA (3270) - 1987
- EDI
    - PRIVATE FORMAT - 1981
    - ASC X..12 - 1986

ASC X.12

- NETWORKS

GEIS	- DIRECT
MCDONELL DOUGLAS	- DIRECT
KLEINSCHMIDT	- VIA GEIS
GM NET	- DIRECT

- PURCHASE ORDERS (RECEIVE)

MAINFRAME TRANSLATOR (VWR):

CENTRAL PROCESSING
AUTOMATIC ORDER ENTRY
LOCAL EDI EDIT REPORTS
PROCEDURE FOR "REJECTS"

ISSUES:

WHICH NETWORK
WHICH ANSI VERSION
*WHOSE PART # (CUSTOMER OR VWR)
WHOSE UM (CUSTOMER OR VWR)
NEED FOR "SHIP TO" ID CODE
MAINTAIN CUSTOMER LINE # INTEGRITY

* VWR PRICE TAPE USED TO GENERATE 50,000 CUSTOMER PART #'S AND SIMULTANEOUSLY PUT PRICES ON-LINE @ CUSTOMER

ASC X.12 (CONT'D

- PURCHASE ORDER ACKNOWLEDGEMENT (SEND)
  - -PRICE AND QUANTITY VERIFICATION:
    - ACROSS-THE-BOARD
    - EXCEPTION ONLY
  - -PROCEDURE FOR "REJECTS"(SUSPENSE FILE)
- INVOICE (SEND)
  - -MAINTAIN P.O. # INTEGRITY
  - -MAINTAIN LINE # INTEGRITY
  - -MISCELLANEOUS CUSTOMER-SPECIFIC DATA

PROBLEM: MANUAL VS EDI P.O.#'S

FUTURE EDI PLANS

- DOUBLE EDI VOLUME OVER NEXT 12 MONTHS

- INSTALL COMMERCIAL TRANSLATOR

- ADD DOCUMENTS:
    - -REMITTANCE ADVICE
    - -EFT
    - -MSDS

- OPTIMIZE USE OF EDI ON PURCHASING SIDE OF BUSINESS AS WELL

Donald Zink
Systems Product Manager
VWR SCIENTIFIC

Don Zink has been the Western Systems Sales Manager for VWR Scientific for the past year. In that capacity, Don is responsible for the promotion of and training for VWR's various customer systems, including VISTA (Direct Order Entry) and EDI.

Previously, Don was Systems Product Manager for four years and was instrumental in adding ASC X12 to the list of VWR's systems offerings. He has followed the growth and development of ASC X12 since its infancy and is a member of the Ed Guilbert fan club.

REAL-LIFE USER CASE STUDIES

Bruce Alexander
EDI Project Manager
Advanced Micro Devices

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AMD'S EDI PROGRAM

HISTORY OF AMD'S EDI PROGRAM

IN 1984 AMD FORMED A LONG RANGE STRATEGY ON EDI WITH TWO GOALS:

- TO DEVELOP CLOSER TIES TO OUR CUSTOMERS USING ANSI X.12 STANDARDS

- TO AUTOMATE THE PAPERWORK BETWEEN AMD AND DISTRIBUTORS

CHALLENGES FOR AMD'S EDI PROGRAM

- AMD HAD NOT DEVELOPED ANY EDI CAPABILITIES PRIOR TO THIS TIME WITH OUR CUSTOMERS
- THE ELECTRONICS INDUSTRY HAD NO GROUP SUPPORTING EDI
- OUR DISTRIBUTORS HAD HOOKED UP ON EDI IN PRIVATE FORMATS WITH OUR COMPETITORS; WE HAD NO EXPERIENCE IN THIS AREA

HOW AMD BECAME A LEADER IN EDI

- BY DEVELOPING NATIONAL X.12 STANDARDS FOR THE EXCHANGE OF INVENTORY AND RESALE INFORMATION
- BY HELPING DEVELOP X.12 STANDARDS FOR SHIP & DEBIT
- BY HELPING FORM THE ELECTRONICS INDUSTRY DATA EXCHANGE ASSOCIATION IN JANUARY 1987
- BY PIONEERING EDI EFFORTS WITH OUR CUSTOMERS

AMD'S EDI PROGRAM FOR CUSTOMERS

- P.O.'S & P.O. ACK'S
- CHANGE ORDERS & CHANGE ORDER ACK'S
- FORECASTS
- SHIP NOTICES
- INVOICES

AMD'S EDI PROGRAM FOR DISTRIBUTORS

- P.O.'S & P.O. ACK'S
- ORDER STATUS
- SHIP & DEBIT
- SHIP NOTICES
- INVOICES
- INVENTORY
- RESALE

THE FUTURE OF EDI AT AMD

- AMD WILL BREAK EVEN ON OUR EDI INVESTMENT BY 1 / 89
- PROJECTED DIRECT DOLLAR SAVINGS ON EDI WILL BE 36K - 50K A MONTH BY 7 / 89
- STABILIZATION OF EDI IMPLEMENTATION EFFORTS WITH INDUSTRY TRADE ASSOCIATION GUIDELINES
- INDIRECT SAVINGS WITH EDI ABOUT 2 TO 1 TO DIRECT WITH PRODUCTIVITY ENHANCEMENTS
- IMPLEMENTATION OF EDI CORPORATE WIDE

MAKING EDI MORE EFFICIENT

- USE OF ANSI X.12 TRANSACTIONS FOR PRODUCT SPECIFICATIONS AND FORECAST WITH MATERIAL RELEASE
- SOFTWARE DEVELOPED WITH EDI IN MIND
- CONTINUED GROWTH OF INDUSTRY EDI GROUPS
- CONTINUED EFFORT TO CODIFY EXCHANGES OF INFORMATION
- ADOPTION OF UPC CODES AS AN INDUSTRY
- TRAINING
- BARCODING AND EDI

Bruce V. Alexander
EDI Project Manager
ADVANCED MICRO DEVICES

Bruce Alexander is a graduate of CSU, Chico, with a Master's Degree in business administration. He has been employed in the electronics industry for ten years and has been active in the field of data processing for over seven years. His experience in data processing includes working on applications for Sales and Marketing, Distribution, Manufacturing, and Business Planning.

In his current position, Bruce is the corporate EDI Project Manager at Advanced Micro Devices. Bruce has been involved in the area of Electronic Data Interchange for four years. He has published *X12 Standards for Inventory and Resale Information*, and is currently Vice Chairperson for EDIX at the the Electronics Industry Data Exchange Association.

REAL-LIFE USER CASE STUDIES

Marty Goldberg

Senior Systems Analyst
Planning/Technical Department

Chevron Information Technologies
Company

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Electronic Data Interchange

- EDI terms
- Major issues
- Network Services (VANs)
- A Dedicated EDI Interface
- Interim Standards

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Electronic Data Interchange

What is EDI?

EDI is the movement of information electronically between two parties for the purpose of facilitating a business transaction. The interchange occurs between computers without human processing.

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Electronic Data Interchange

What is EDI?

It represents in electronic form, rather than paper form, business transactions such as purchase orders, invoices, catalog/price information, etc.

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Electronic Data Interchange

What is EFT?

EFT (Electronic Funds Transfer) is the transfer of value electronically from buyer to seller assisted by a financial intermediary.

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Electronic Data Interchange

Transaction Sets/Record Formats

- Created by TDCC and ANSI X12
- Major trade groups:

  Air, Motor, Ocean, Rail

  UCS (grocery), WINS (warehouse)

  General Business (ANSI X12)

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Electronic Data Interchange

Transaction Sets/Record Formats

- Public Domain
- ANSI X12 standard updates twice a year
- Much conversion software exists today

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Electronic Data Interchange

Trading Partnerships

- Trading partnerships are the heart of EDI!
- Not all partnerships are the same ... at least 3 types.
- Requires extensive negotiations and accommodations

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Electronic Data Interchange

Trading Partnerships

Class I

- One to one trading relationship

Example:

Chevron's Master Card/Visa exchange with a bank

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Electronic Data Interchange

Trading Partnerships

Class I

- No advantage to public domain record formats
- No advantage for a particular communications method

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Electronic Data Interchange

Trading Partnerships

Class III

- One to many trading relationship

Example:

Chevron's X12 exchange with
a computer reseller

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Electronic Data Interchange

Trading Partnerships

Class III

- Big advantage to public domain record formats
- Big advantage for a particular communications method

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Electronic Data Interchange

Trading Partnerships
Class II

- One to few trading relationship

Example:

Chevron's participation in JIBE
(Joint Interest Billing Exchange)

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Electronic Data Interchange

Trading Partnerships

Class II

- Small advantage to public domain record formats
- Small advantage for a particular communications method

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Electronic Data Interchange

de-facto Communications Standard

- No ANSI X12 standard
- Bi-Synchronous 2780/3780 RJE (least common denominator among disparate computer systems)

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Electronic Data Interchange

E-Mail vs. EDI

- EDI is the standardization of record formats
- E-Mail provides an "envelope" for the movement of data (formatted records)
- E-Mail is not EDI.
  EDI is not E-Mail.

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Electronic Data Interchange

Major Issues in EDI

- Security
- Audit
- Quality of Service

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Electronic Data Interchange

Major Issue: Security

- Assure proper security of Chevron's environment

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Electronic Data Interchange

Major Issue: Audit

- A clear audit trail is essential.

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Electronic Data Interchange

Major Issue: Quality of Service

- Availability
- Thruput
- Control over system outages and network changes
- Maintenance of System and Application software
- Maintenance of ANSI X12 Standard

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Electronic Data Interchange

Major Issue: Quality of Service

- New application setup
- New partner setup for existing application

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Electronic Data Interchange

Network Services

EDI network services include a store and forward mailbox to allow trading partners to exchange data streams without being directly connected.

Some provide data stream translation services.

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Electronic Data Interchange

Network Services
RFI vendors

- GEISCO
- McDonnell Douglas
- IBM
- TransSettlements
- Western Union
- Telenet/Sterling-OrderNet
- Kleinschmidt
- AT&T

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Electronic Data Interchange

Network Services
RFI responses

- Most EDI VAN vendors claim they can "do it all".
- EDI VAN pricing is very confusing.
- EDI interconnect is very interesting.

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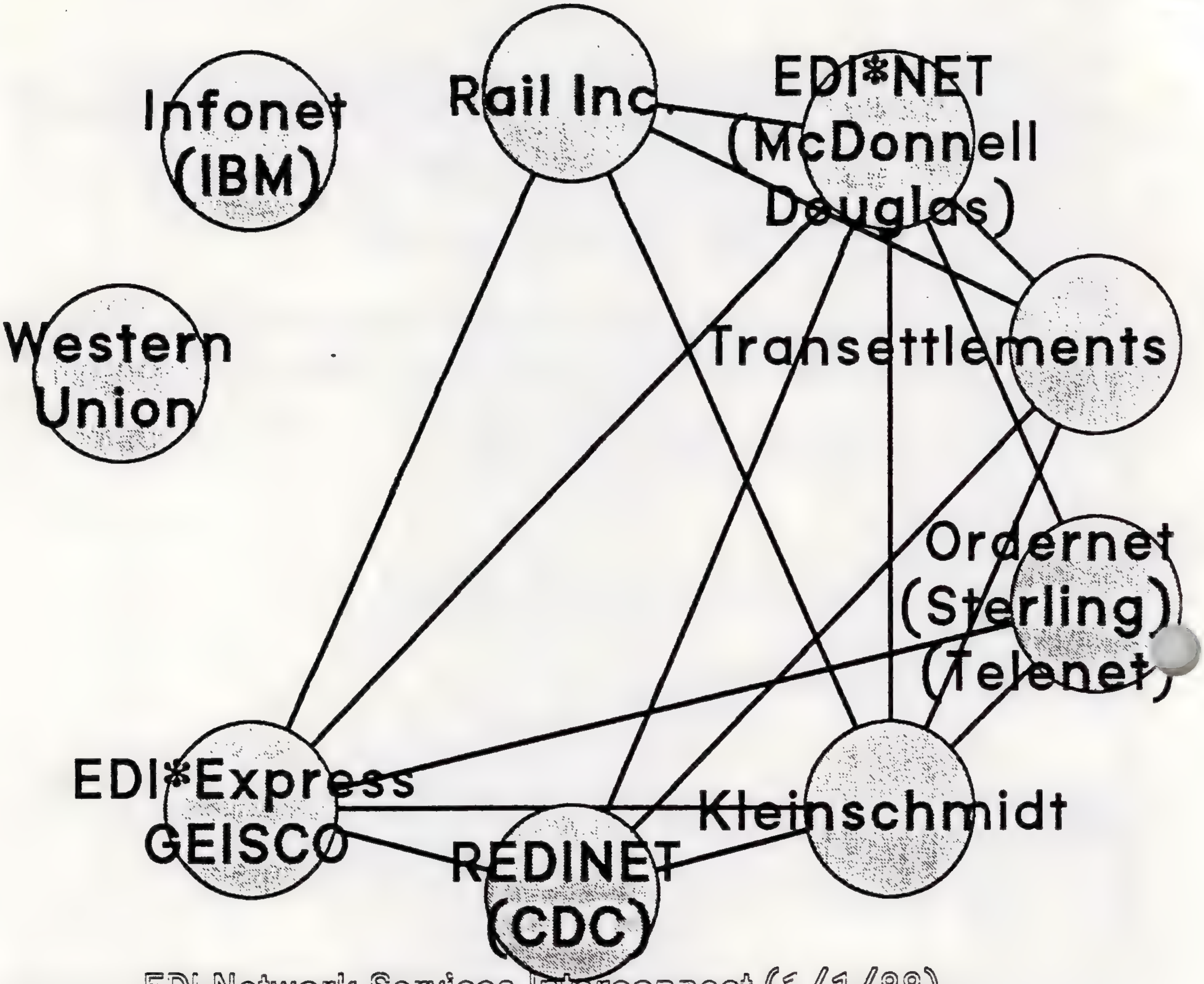

EDI Network Services Interconnect (1/1/88)

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Electronic Data Interchange

A Dedicated EDI Interface

Overview

- Consolidates communications interfaces to trading partners
- Provides communications support for non-Chevron communications standards (such as Bi-Sync)
- Provides data stream translation into/out of EDI standard

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Electronic Data Interchange

A Dedicated EDI Interface

Overview

- Minimize Chevron's security exposure
- Maximize audit capabilities (all EDI data will flow thru one machine)
- Improves some quality of service issues

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EDI Connectivity

Trading
Partners

Chevron's
SNA
Data Network

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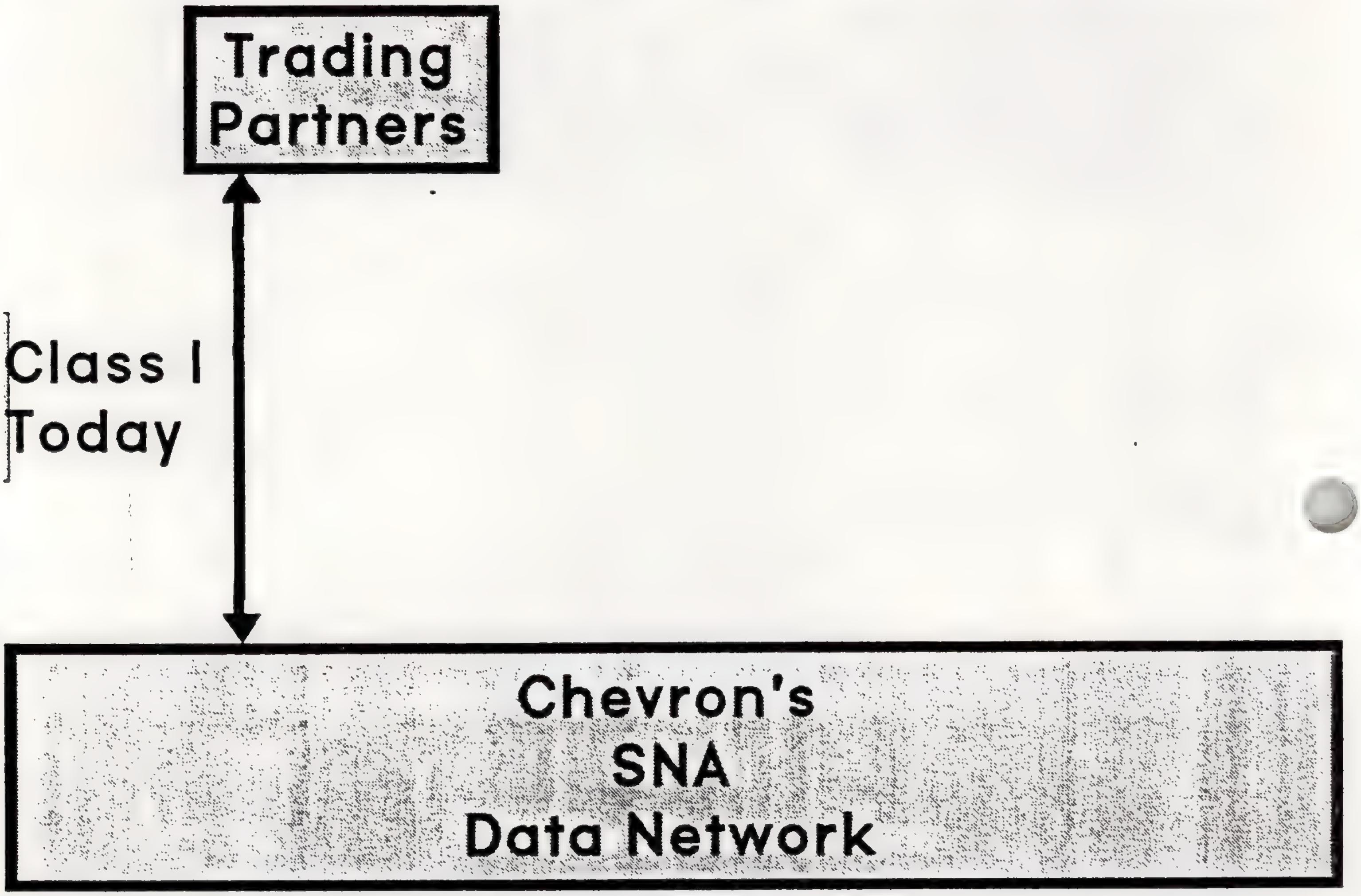
EDI Connectivity



Trading Partners

Class I Today

Chevron's SNA Data Network

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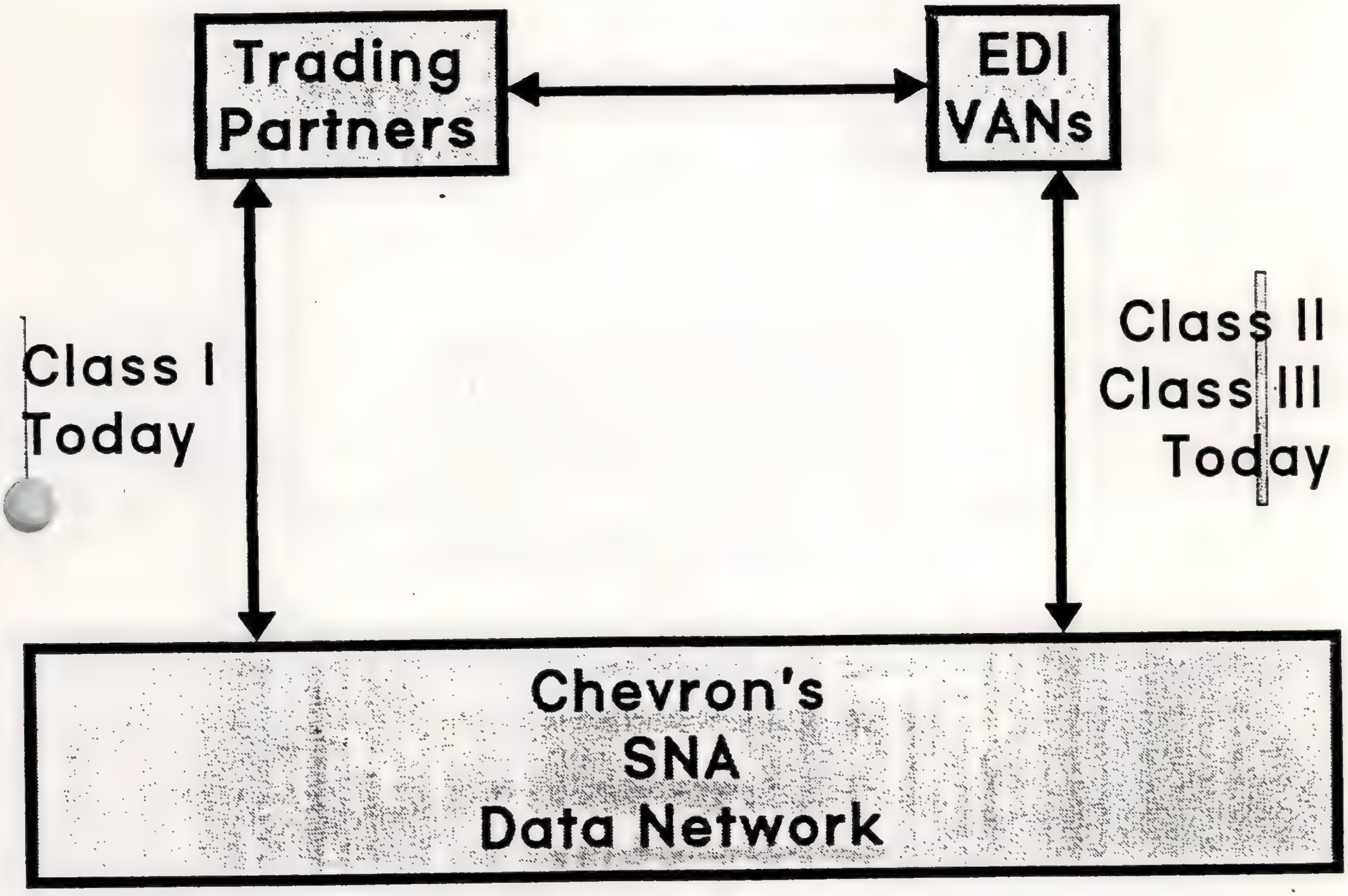
EDI Connectivity



Trading Partners

EDI VANs

Class I Today

Class II
Class III
Today

Chevron's SNA Data Network

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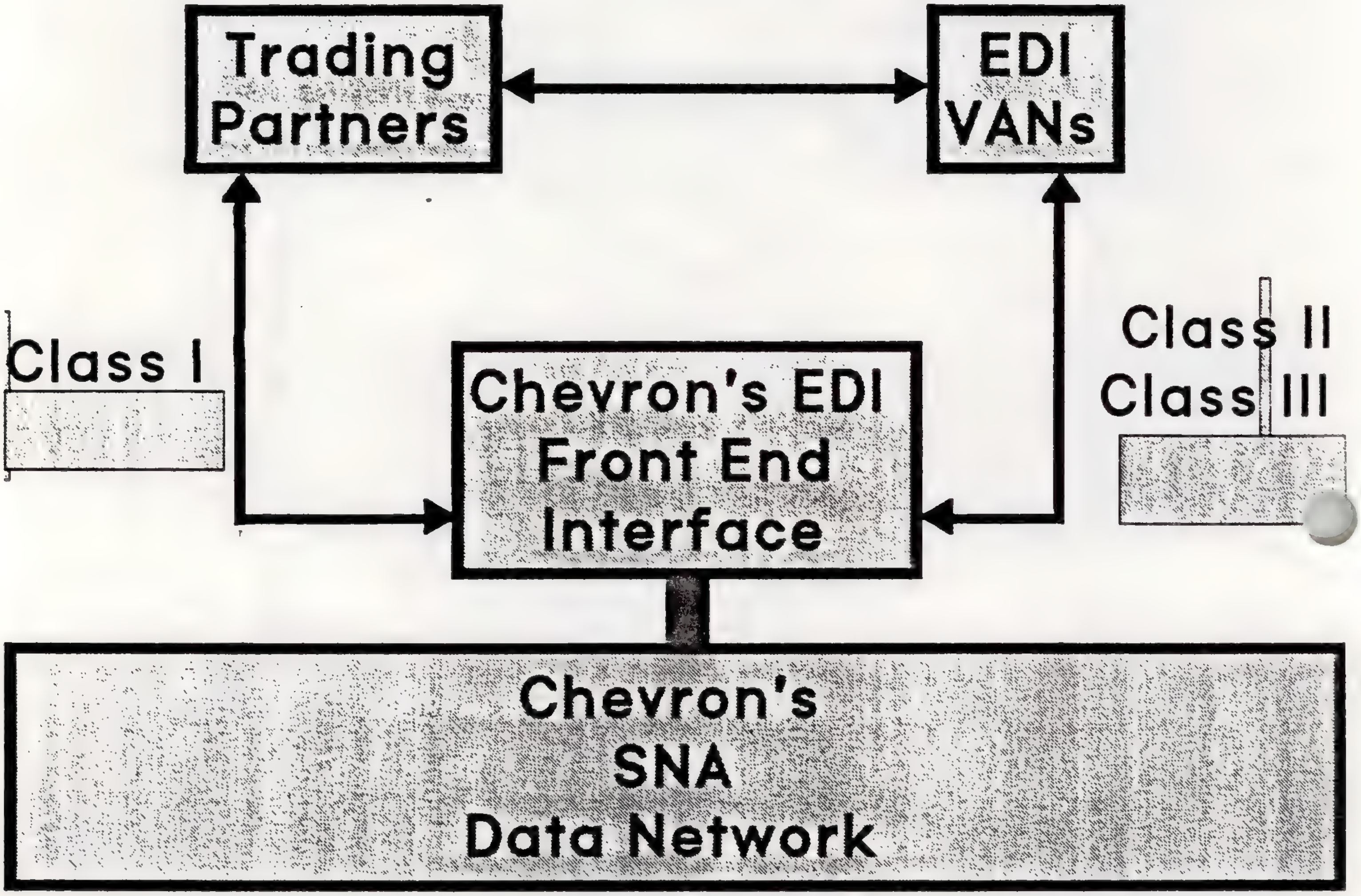
EDI Connectivity



Trading Partners

EDI VANs

Class I

Class II
Class III

Chevron's EDI Front End Interface

Chevron's SNA Data Network

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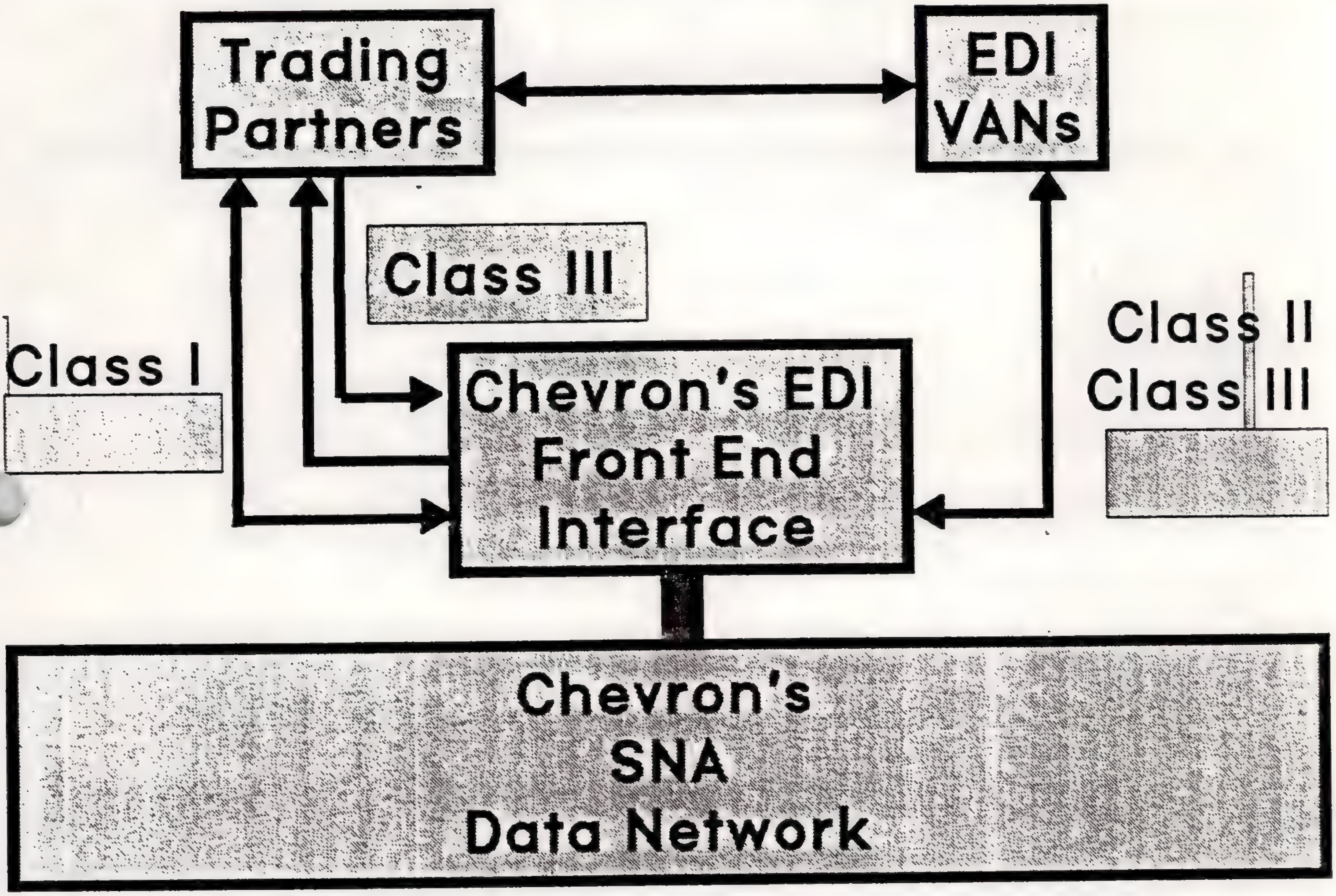
EDI Connectivity



Trading Partners

EDI VANs

Class III

Class I

Class II

Class III

Chevron's EDI Front End Interface

Chevron's SNA Data Network

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Electronic Data Interchange

A Dedicated EDI Interface
RFP Vendors

- IBM
- DEC
- Tandem
- Stratus
- AT&T

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Electronic Data Interchange

A Dedicated EDI Interface
RFP responses

- The concept is feasible
- Most software available "off the shelf"

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Electronic Data Interchange

Costs

- Applications Development Costs
- Operational Costs
- VAN Costs
- Front End Interface Costs
  Software/Hardware

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Electronic Data Interchange

Interim Standard
Class I

- Evaluated on a case by case basis
- Encryption whenever possible

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Electronic Data Interchange

Interim Standard

Class II

- Use either a Class I or a Class III solution.

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Electronic Data Interchange

Interim Standard

Class III

- Utilize established EDI Network Services Vendors (McDonnell Douglas, GEISCO, and Kleinschmidt)
- Encryption whenever possible

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Martin Goldberg, PhD
Senior Systems Analyst
CHEVRON INFORMATION TECHNOLOGIES COMPANY

Martin Goldberg is a senior systems analyst in the Planning and Technology Department of Chevron Information Technology Company in San Ramon, California. Chevron Information Technology Company develops and operates Chevron Corporation's voice and data systems and manages the company's worldwide communications networks.

Dr. Goldberg has over ten years of experience at Chevron. His achievements include participation in the creation of Chevron's Personal Computer Services group, which is responsible for hardware and software evaluations, user support, and policy formulation for all corporate personal computer implementations.

As a member of the advanced office systems division, Dr. Goldberg developed Chevron's Office Systems Tactical Plan. Among his other accomplishments at Chevron are the development of a micro-based refinery control room work tracking system and a mini-based refinery tool room inventory control and management reporting system.

In his current position, Dr. Goldberg is involved in the research, planning and implementation of EDI technology at Chevron. He recently developed the company's EDI Tactical Plan.

Dr. Goldberg joined Chevron in 1977, after serving as Associate Professor of Management at the University of South Florida. During his academic career, he authored over two dozen articles and papers in the area of simulation modeling and health care systems.

He acquired his MS and PhD from Northwestern University and holds a BEE and BA from Union College. Dr. Goldberg is a member of the ACM and the IEEE.

RETAIL EDI

Dale Achabal

Manager
Retail Management Institute

University of Santa Clara

INPUT®

RETAIL EXECUTIVE PERSPECTIVES ON EDI / QUICK RESPONSE

by

Dale D. Achabal, Ph.D.
L.J. Skaggs Distinguished Professor
Director, Retail Management Institute
Santa Clara University

Shelby H. McIntyre, Ph.D.
Chairman
Department of Marketing
Santa Clara University

presented at

INPUT EDI / INTERTRENDS CONFERENCE

SAN FRANCISCO, CA

July 1988

"We want to do EDI with you, and if that isn't possible, we may have to search out new vendors who can do it."

I. INTRODUCTION

A. Senior Retail Executive Perspective on EDI/QR, funded by Retail Industry Marketing Management Group and EDI Market Management Center, AT&T.

B. QR/EDI is seen, in part, as a philosophy of cooperation; a "win-win" situation with high stakes for all parties.

C. Focusing on the department store sector.

II. METHODOLOGY

A. Essentially exploratory, utilizing in-depth personal interviews with key executives at a sample of leading retail establishments including Bullock's, Carter Hawley Hale, Florsheim Shoes, The Limited, Macy's-New York, May Company - California, Mervyn's, Neiman Marcus, J.C. Penny's, Sears Roebuck, and Wal-Mart.

B. Objective was to obtain first-hand comments on:

1. how these key executives felt about EDI;
2. expectations for EDI/QR;
3. plans for implementation; and
4. key uncertainties and/or areas that are of concern.

C. Developed a Standardized Open-ended Interview Protocol focusing on the following key topic areas:

1. Perceptions of EDI/QR
2. Status of EDI/QR in the Organization
3. Future Role of EDI/QR in the Organization
4. Advantages / Disadvantages of EDI/QR
5. Transition to EDI/QR
6. The 3rd Party Role

"This is going to be the way American business does business."

III. RESULTS OF EXPLORATORY INTERVIEWS

A. Retailer's major motivation is the ability to serve the customer better at a lower cost.

B. The key QR/EDI question is not "whether," but "when."

C. The current flurry of mergers & acquisitions in the retail industry has had a major impact on the priority given to QR in many organizations.

D. In order for a retailer to use QR effectively they must be able to capture the movement of merchandise at the SKU level.

E. To realize the true potential of QR a significant portion of the purchasing process must be automated. Key factors include data integrity, the nature of the merchandise mix, the size & type of the organization, and a vendor's willingness / ability to provide short cycle replenishment.

F. The adoption of QR will also be affected by the nature of the merchandise mix of a given retail organization primarily due to their ability to more accurately forecast consumer demand and reorder merchandise from the vendor.

G. The short (6-12 week) life cycle of many fashion items will make this merchandise one of the last areas to utilize QR.

H. Those firms that manufacture "greige" goods (e.g. Benetton) that can be dyed and shipped within a matter of days after receiving an electronic purchase order will have a significant competitive advantage.

I. One key factor in effective QR is the ability to capture trend, sell-thru, and forward forecast data (at both the retail and vendor levels) and use this data for setting inventory levels and determining orders, and in production scheduling and ordering of raw materials.

J. Several retailers and vendors are exploring the use of expert systems that incorporate both expert judgement and statistical modeling to allow them to automate a large part of the forecasting and ordering process.

K. Retailers with a large number of stores with store level buying are likely to be on the leading edge of EPO.

III. RESULTS OF EXPLORATORY INTERVIEWS (Cont'd)

L. The potential cost savings associated with EPOs and EDI are significantly less for the department store than the savings that can be realized through QR.

M. The confidentiality of sell-thru data is an important issue that many of the retailers have not thought through completely as of yet.

N. A key issue with retail executives is the roll-out strategy to follow when implementing EDI.

O. EDI is expected to help resolve the problem of the concentration of shipments arriving at the beginning of the month.

P. EPO is / will be largely transparent to the buyer in many organizations since they have been placing orders through a computer terminal for many years.

Q. EDI is seen as having the potential to eliminate many human errors and significantly reduce merchandise handling costs.

R. A key point seems to be that the retailer can only develop internal systems up to some point, to further develop internal systems requires bringing the vendor into the process.

S. EDI is going to change the nature of the relationship between the retail buyer and vendor representative.

T. QR / EDI is likely to contribute to a power struggle in the channel between the vendor representative and the retail buyer unless management in both organizations enter into this new relationship on a partnership basis.

U. The role of an Electronic Catalog in QR/EDI is not well defined or understood by the majority of retail organizations.

Dale D. Achabal, PhD
SANTA CLARA UNIVERSITY

Dr. Achabal is Director of the Retail Management Institute and the L. J. Skaggs Distinguished Professor at Santa Clara University. Professor Achabal received his PhD in marketing regional economics from the University of Texas at Austin. He has taught in the undergraduate, graduate, and executive development programs at the University of California at Berkeley, Ohio State University, the University of Texas, and Santa Clara University.

Professor Achabal is active in research focusing on information and expert systems, productivity analysis, and retail patronage. He has published numerous articles in various journals, including the Journal of Marketing, Journal of Retailing, Decision Sciences, Geographical Analysis, and Social Science and Medicine. In addition, he has presented papers at industry and professional conferences throughout the U.S. and Europe and is active in the American Marketing Association (AMA) and National Retail Merchants Association (NRMA). He is also a member of the Editorial Board of the Journal of Retailing and is the recipient of two national awards for his research.

Dr. Achabal is a regular lecturer and consultant to a variety of organizations in the areas of strategic marketing planning information systems and marketing research. His current and former clients include AT&T, ByVideo, ComputerLand, IBM, The Limited, Mervyn's, JC Penney, Produce Marketing Association, Safeway, and Tandem Computers.

RETAIL EDI

Kathy Spangenberg
Director, Systems & Programming
Mervyn's

MERVYN'S

MERVYN'S

MERVYN'S BACKGROUND

MERVYN'S IS A VALUE ORIENTED FAMILY DEPARTMENT STORE SPECIALIZING IN CLOTHING AND SOFT GOODS

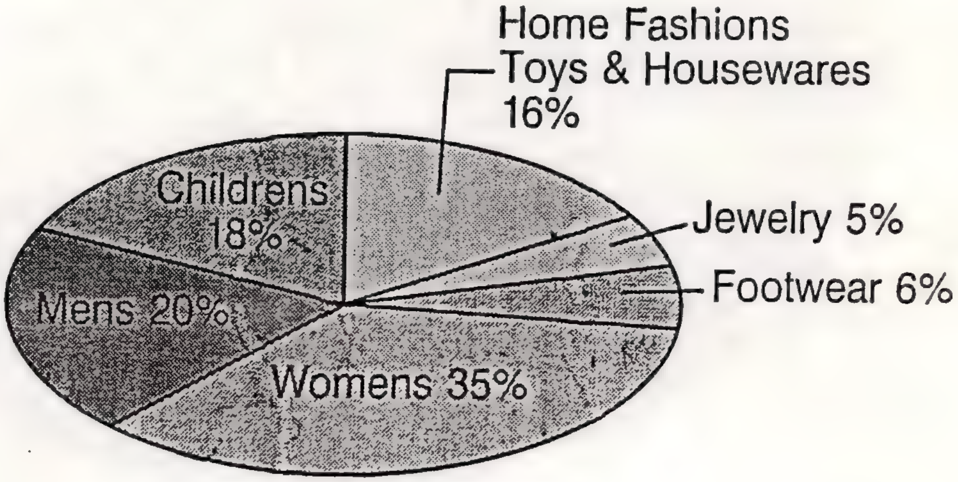
1986: Revenues: $2.9 Billion

Stores: 199 by 12/87
24 New Stores in 1987

Store Sizes: 60,000, 75,000 and
82,000 Square Feet

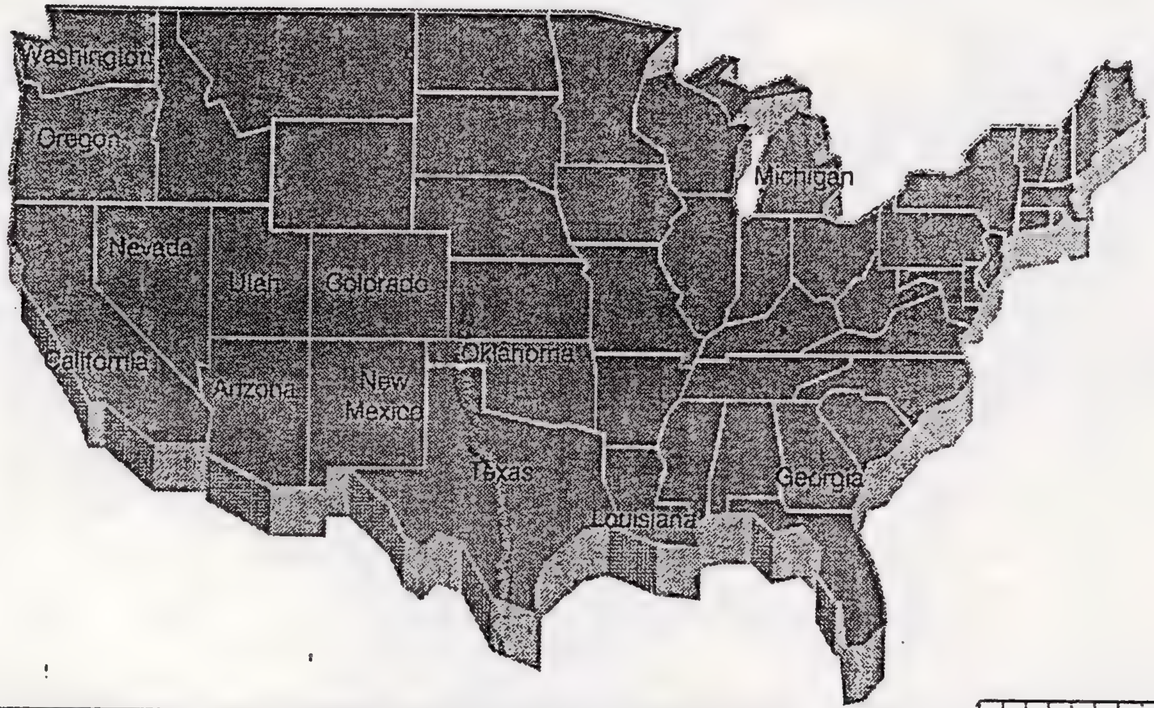
MERVYN'S

MERVYN'S BACKGROUND
1986 SALES BY MERCHANDISE AREA



MERVYN'S

MERVYN'S GROWTH CONTINUES



MERVYN'S

OVER SUPPLIED RETAIL MARKET

TOO MANY STORES

TOO MUCH MERCHANDISE

TOO MANY VENDORS

TOO MANY COMPETITORS

TOO MANY PRICE PROMOTIONS

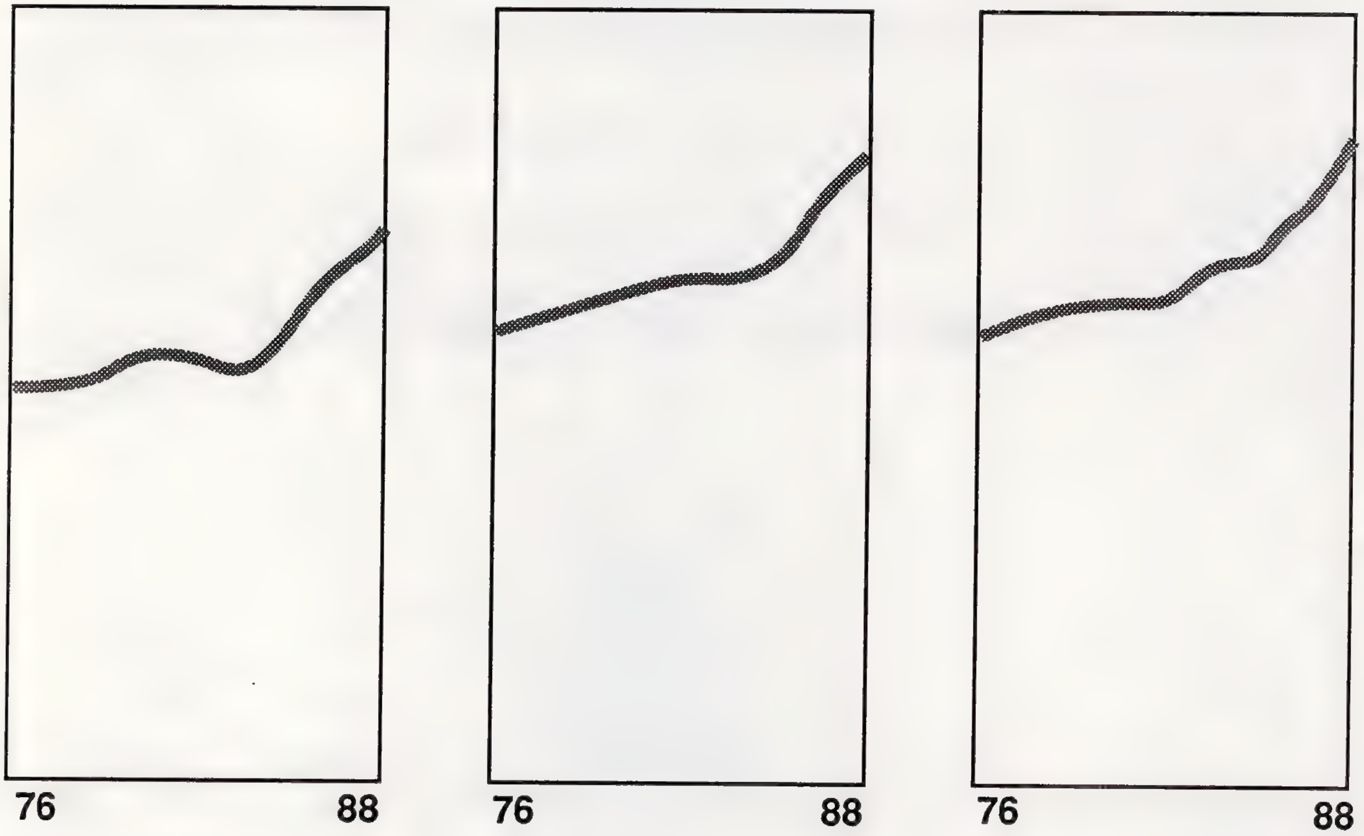
↓

INCREASED MARKDOWNS

DECREASED INVENTORY TURN

DEPARTMENT STORES

MARKDOWNS - % OF SALES



Men's Wear

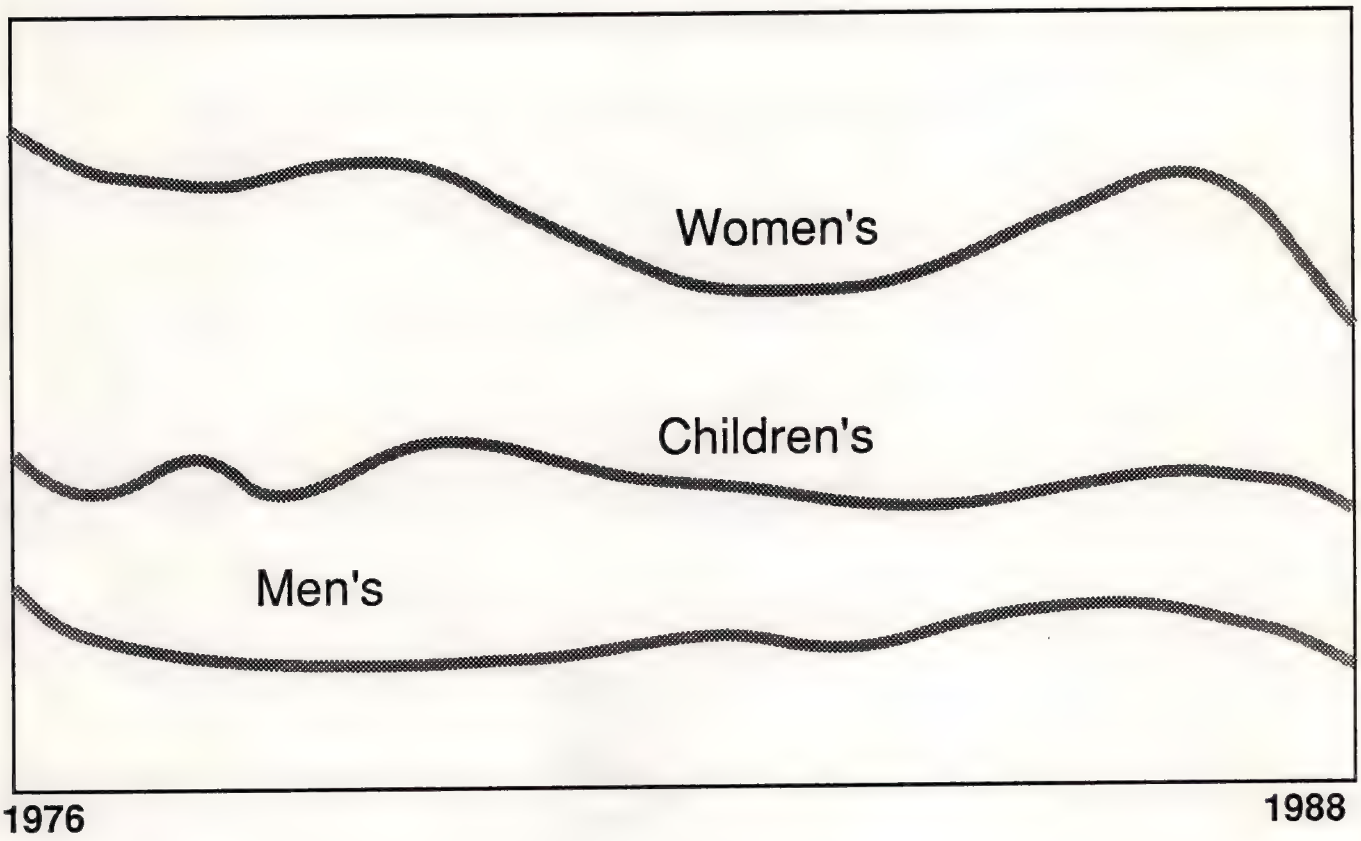
Women's Wear

Children's Wear

Source MOR/NRMA

DEPARTMENT STORES

INVENTORY TURNOVER



Source MOR/NRMA

CURRENT RETAIL CHAIN INEFFICIENCIES

POOR/INADEQUATE INFORMATION

DUPLICATED EFFORT

SLOW MANUFACTURING CYCLE

EXCESS INVENTORY

POOR FORECASTING

LONG LEAD-TIMES

SLOW COMMUNICATION

LACK OF COOPERATION

↓

CUSTOMER DISSATISFACTION

EDI
THE QUICK RESPONSE SOLUTION

MATERIALS → FIBER → APPAREL → TEXTILE → RETAIL

RAPID REPLENISHMENT OF RIGHT MERCHANDISE

QUICK CONSUMER DEMAND INFORMATION DISSEMINATION

SHORTER REORDER CYCLE

REDUCED LEAD-TIMES

ACCURATE FORECASTS CLOSER TO SELLING SEASON

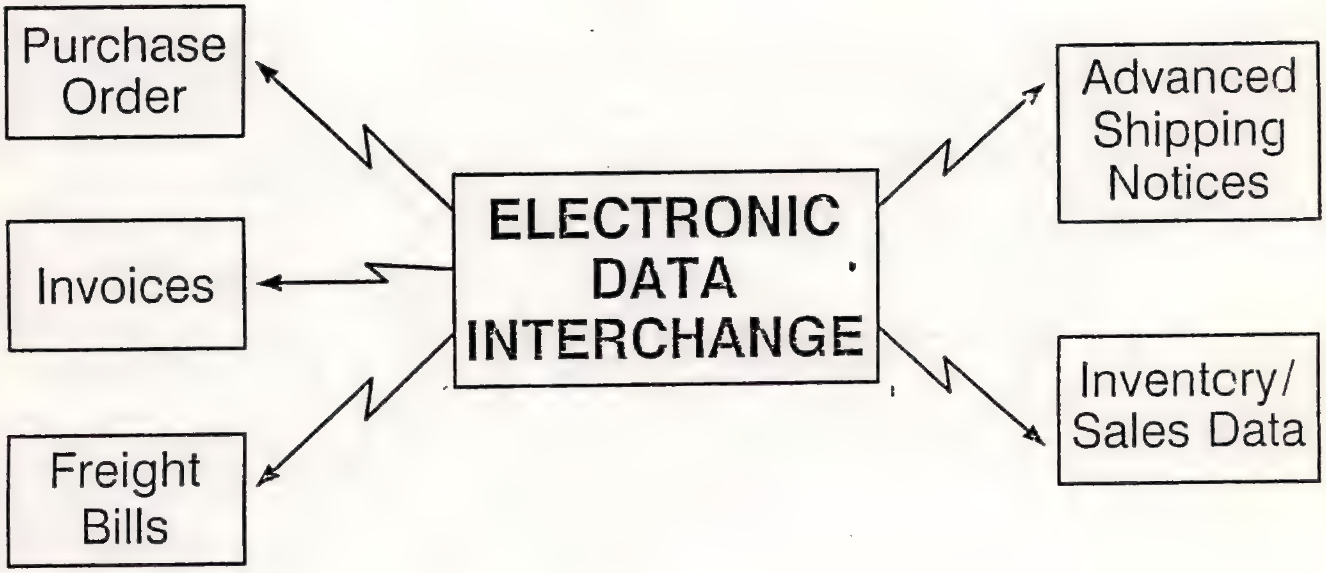
⬇

CUSTOMER SATISFACTION

EDI
TANGIBLE BENEFITS

- INCREASED SALES
- INCREASED GROSS MARGIN
- REDUCED MARKDOWNS
- REDUCED INVENTORIES
- INCREASED ROI

EDI APPLICATIONS



Purchase Order

Invoices

Freight Bills

ELECTRONIC DATA INTERCHANGE

Advanced Shipping Notices

Inventory/ Sales Data

MERVYN'S

EDI HISTORY

Completed EDI Evaluation	February 1986
Established EPO Objectives	March 1986
Began EPO Pilot	October 1986
Implemented EPO	February 1987
Established EPO Rollout Strategy	June 1987
Began EPO Rollout	July 1987

MERVYN'S

EDI STRATEGY

- ANSI X12 Standards/VICS
- Third Party Network
- Senior Management Commitment
- Target Key Vendors
- Vendor Conference

MERVYN'S

BENEFITS

EDI

- Reduced Data Entry/Paper Handling Costs
- Enhanced Trading Partner Relationships

EPO

- More Rapid Replenishment of Merchandise
- More Consistant Flow of Merchandise
- Improved in Stock Position

MERVYN'S

BUSINESS IMPACT

ISSUE	SOLUTION
• Retailer and Vendor Business Practices	• Trading Partner Worksheet
• System Compatibility	• Planning Meetings Prior to Implementation
	• EDI and Other Forms of Communication

ANSI X12

ISSUE	SOLUTION
Mapping Data to Standard	VICS Retail Industry EDI Conventions and Guidelines
Interpretation	Participation in VICS Committee
	Mervyn's Guidelines

PRODUCT IDENTIFICATION

ISSUE	SOLUTION
Common Method for Identification	Provide Options - Vendor UPC - Mervyn's Item Number - Mervyn's Item Number and Description

MANAGEMENT OF THE IMPLEMENTATION PROCESS

ISSUE	SOLUTION
• Status of Vendors • Communication with Vendors	• PC Based Tracking and Reporting System • Electronic Mail • Log of Conversations • Sr. Management Escalation Process

EDI ARCHITECTURE

ISSUE	SOLUTION
• Flexible Architecture	• Parameter Driven System
• Support Requirements	• Application Components
	• EDI Coordinator

FUTURE IMPLEMENTATION OPTIONS

ISSUE	SOLUTION
• Third Party Network	• Multiple Vendors
• Translation Software	• Re-Evaluate Based Upon Application and Available Software

Kathy Spangenberg
Director, Systems and Programming
MERVYN'S

Kathy Spangenberg is the Director of Systems and Programming at Mervyn's. She joined Mervyn's in 1981 as the Project Manager of Merchandise Processing Systems. In 1983, she was named Manager of Merchandise Systems. In 1986, she assumed responsibility for the development and support of all business application systems when she became the Director of Systems and Programming.

Prior to joining Mervyn's in 1981, Kathy spent several years as a consultant with Lambda Technology.

Kathy graduated from the University of Oregon in 1976, where she obtained a Bachelor's Degree in Computer Science with a minor in Business Administration.

GLOBAL EDI
AND THE
X.400 STANDARD

Alex Graham
Principal Consultant
INPUT

Agenda

- Multinational Business Considerations
- International EDI
- International Service Issues
- Role of X.400
- EDI in the 1990s

INPUT

NOTES:

ECON-AG-2

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Multinational Business Considerations

- Business Trends
- Information Reqts.
- Trade Documentation Costs

INPUT

NOTES:

ECON-AG-3

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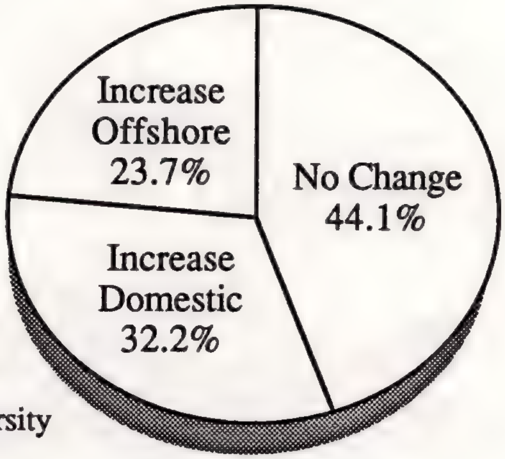
Production and Sourcing Plans

Future Production Plans



Source:
Boston University

INPUT

NOTES:

ECON-AG-4

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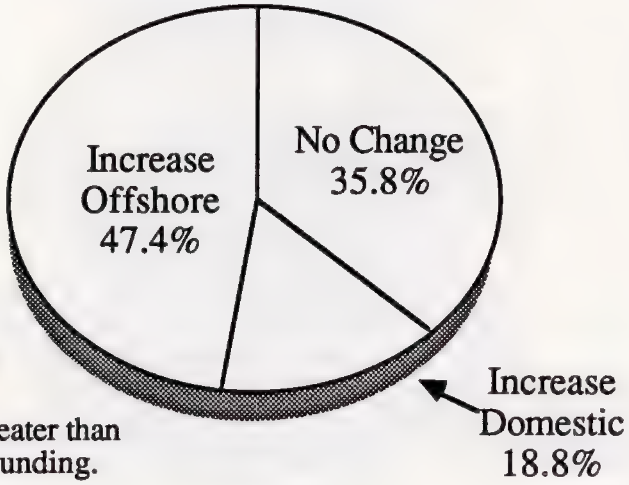
Production and Sourcing Plans

Future Purchases



Source: Boston University

Note: total is greater than 100% due to rounding.

INPUT

NOTES:

ECON-AG-5

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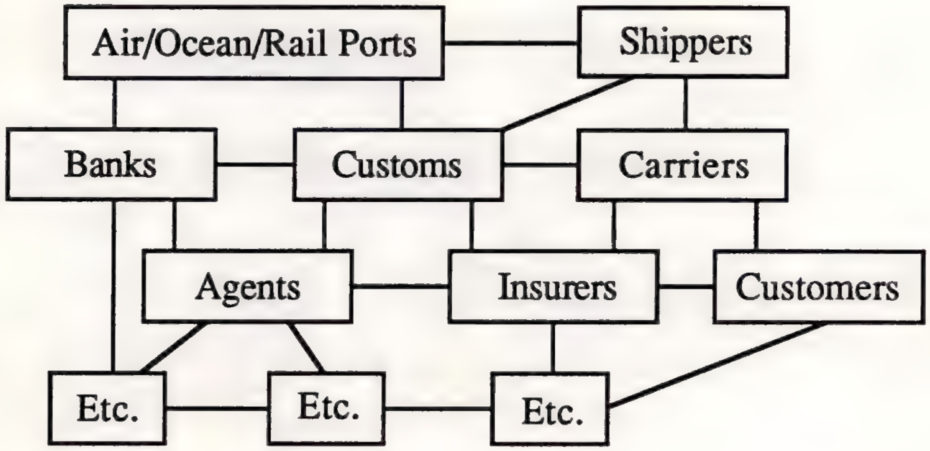
Complicated Trade Interfaces



Air/Ocean/Rail Ports
Shippers
Banks
Customs
Carriers
Agents
Insurers
Customers
Etc.
Etc.
Etc.

INPUT

NOTES:

ECON-AG-6

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Trade Documentation

- Complex—28 Organizations per Shipment
- Errors Cause Expensive Delays
- Worldwide Documentation:
  - 7 Billion Forms/Year
  - $40 Billion/Year
- Document Fraud: $100 Million/Year

INPUT

NOTES:

ECON-AG-7

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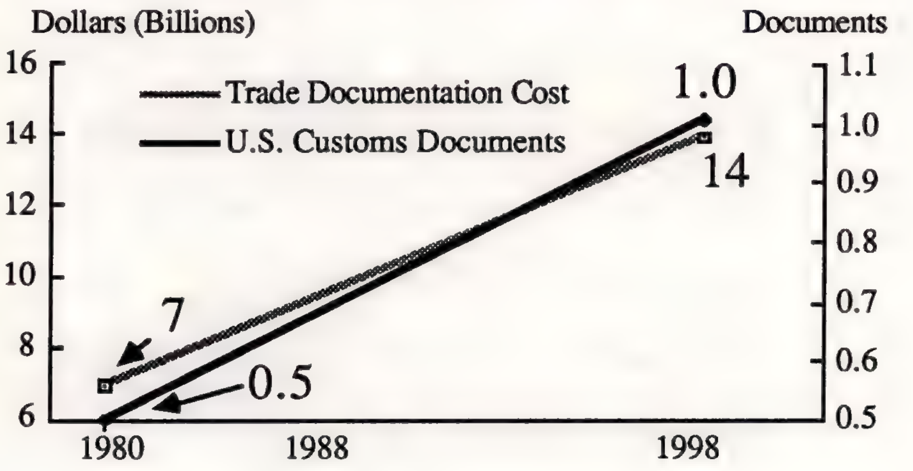
Trade Documentation Volume and Costs



INPUT

NOTES:

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International Initiatives

- Trade Facilitation
- Harmonized Code (Nomenclature)
- Automated Commercial System
- Automated Credit Letters
- Computerized Ports
- Carriers Using EDI

INPUT

NOTES:

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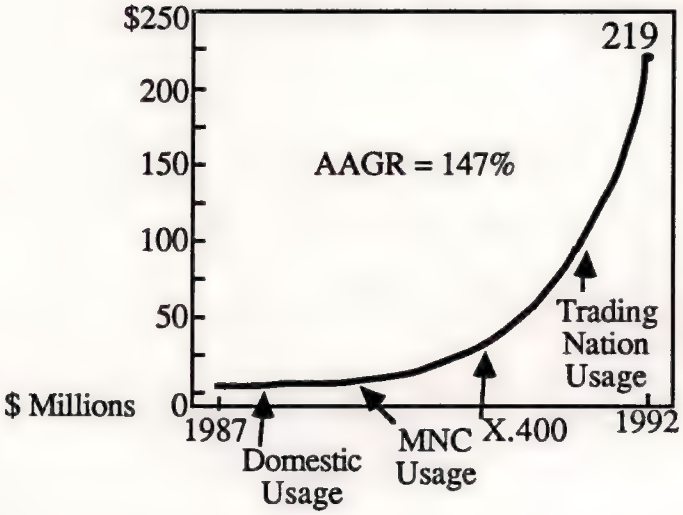
IEDI Services*—A $219 Million Market by 1992



*Network/
Processing
Services

INPUT

NOTES:

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International Initiatives

- Europe
- North America
- Asia/Pacific

INPUT

NOTES:

ECON-AG-11

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European Initiatives Contributing Factors

- Trade Barrier Reductions
- Telecomm. Liberalization
- International Competition

INPUT

NOTES:

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United Kingdom Initiatives

- International Network Services
  - GEIS/ICL Joint Venture
  - Several Services
    - ° Tradenet (Commercial)
    - ° Motor Net (Automotive)
    - ° Brokernet (Insurance)
  - 64% of Market

INPUT

NOTES:

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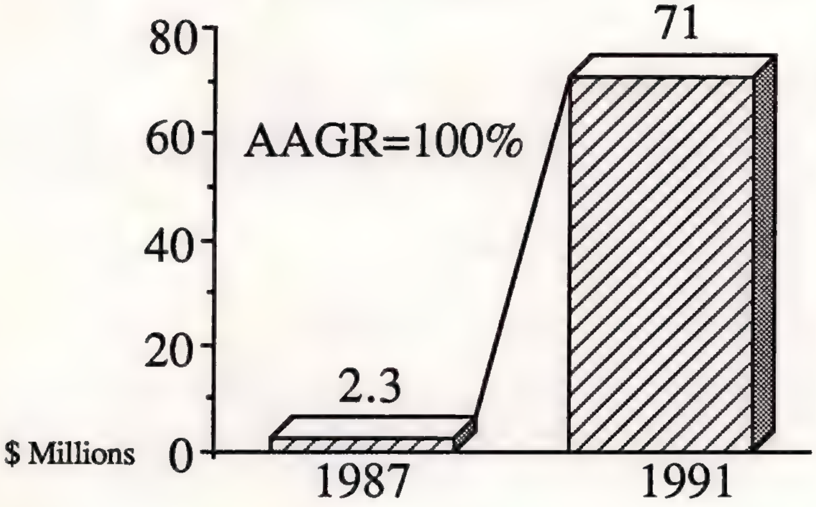
EDI Market Growth United Kingdom



INPUT

NOTES:

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France Initiatives
Several Areas Lacking

- Benefits Awareness/Standards
- Government Sponsorship/Bureaucracy
- PTT Protectionism
- However, Changes Pending
  - Public Telecom Company Proposal

INPUT

NOTES:

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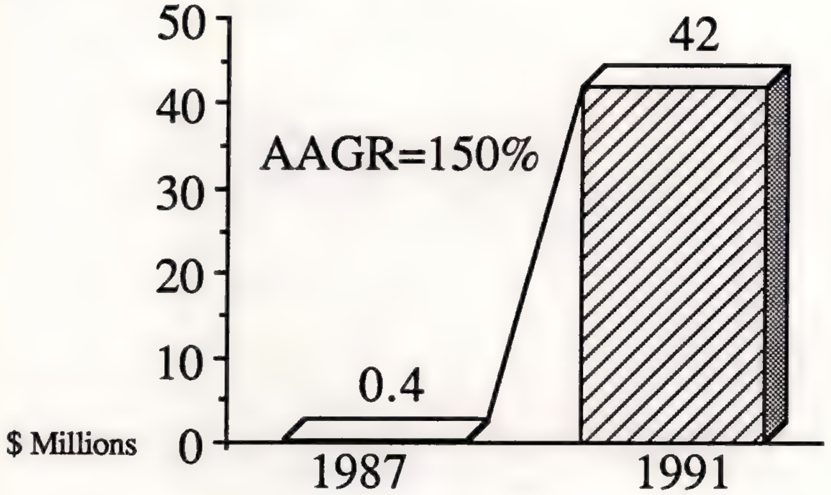
EDI Market Growth France



INPUT

NOTES:

ECON-AG-16

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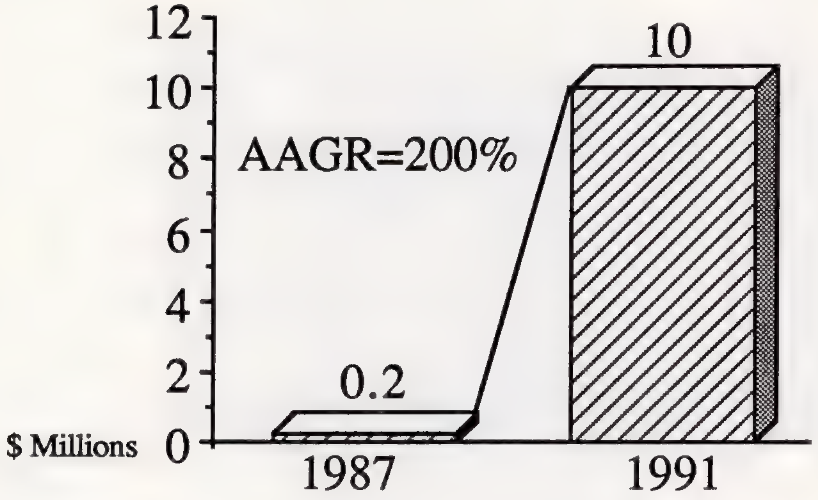
EDI Market Growth West Germany



INPUT

NOTES:

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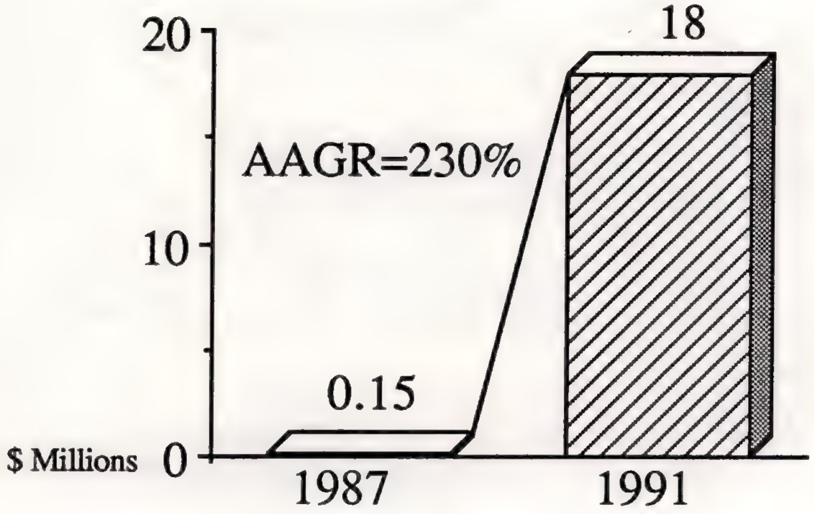
EDI Market Growth Italy



INPUT

NOTES:

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European Initiatives
Other Countries

Benelux
- Distributors Using GEIS
- Rotterdam Harbour Automation
- Integrated Customs Systems
- Antwerp Computerized Documentation

Sweden
- 50 Wholesalers, 72 Suppliers Linked
- Customs Systems Being Developed

INPUT

NOTES:

ECON-AG-19A

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European Initiatives
Other Countries

Denmark
- KTAS IBM/Denmark Joint Venture

Finland
- Forest Products Traded
- 15 Companies, 100 Partners

INPUT

NOTES:

ECON-AG-19B

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International Initiatives
Canada

- EDI Council 1984
  - Third Party vs. Private
  - X.400 Connecting EDI Mailboxes
- Extensive Vendor/Network Involvement
  - GEIS
  - IBM
  - Sterling Software
  - Kleinschmidt
  - Crown Tek
  - Telecom Canada
  - iNET America
- Currently $1 Million per Year

INPUT

NOTES:

ECON-AG-20A, B

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International Initiatives
Asia/Pacific

- Japan
- Hong Kong
- Korea
- Singapore

INPUT

NOTES:

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Japan's EDI Environment

- Telecommunications Liberalizing
- Increasing Intercompany Networking
- Many VANs
  - Half with EDI-Type Services
  - Leading EDI Service: NTT's Dress
  - Some U.S. VANs Involved
- No EDI Standards
- Heavy International FAX Use

INPUT

NOTES:

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Major U.S./Japanese Value-Added Network Partnerships

Japanese Company	U.S. Company*	Comments
Hitachi	Tymshare	"Hi-Net" Interconnects Hitachi Group Companies
INTEC	Telenet	
Mitsui	AT&T	Joint AT&T Venture Is "ENS."
	CSC	CSC Collaboration Is International

* May be Japanese affiliate company, or partly owned by U.S. firm.

INPUT

NOTES:

ECON-AG-23A,B

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Major U.S./Japanese Value-Added Network Partnerships

Japanese Company	U.S. Company*	Comments
NEC	GEIS	Plans to Link to GEIS' VAN
NTT	IBM	Nippon Information and Communications Is SNA-Based and Links to NTT's "DRESS" VAN

* May be Japanese affiliate company, or partly owned by U.S. firm.

INPUT

NOTES:

ECON-AG-23C,D

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Hong Kong

HOTLINE

- Trade Council Initiative
- Also Banks, Air Carriers, Cable and Wireless, Ltd.
- Government Reluctant Participant in Study—Due Spring 1989

INPUT

NOTES:

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Korea

- DACOM
  - International Pilot
  - Sears (Canada), Others

- X12 Formats

- Intent: Link with All N. American EDI Services

INPUT

NOTES:

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Korea

- Steel VAN (POSCO)
- Auto (Establishing Industry Group)
- X.400 Pilot—Olympics
- Customs → EDIFACT

INPUT

NOTES:

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Singapore

TRADENET

- In Country Trade Community
- Proprietary Formats
- Government Projects

INPUT

NOTES:

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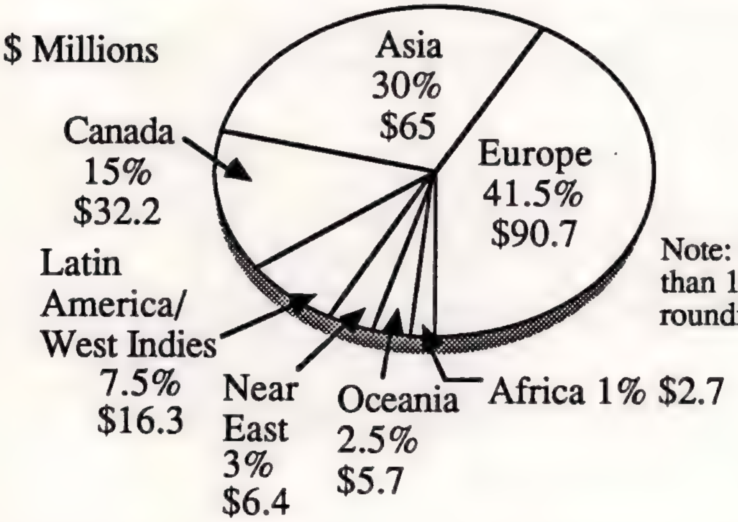
U.S. Users' Expenditures for IEDI by Trade Region 1992



Note: Totals more than 100% due to rounding

INPUT

NOTES:

ECON-AG-28

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Users' International Telecommunications Concerns

1. PTT Policies and Practices
2. Circuit Quality and Reliability
3. Service Availability (Including Leased Lines)
4. Time Delays
5. Transborder Data Flow Policies/Practices
6. Equipment Incompatibilities
7. Service Incompatibilities
8. Costs
9. Circuit Usage Restrictions/Lack of Interconnections

Source: NTIA

INPUT

NOTES:

ECON-AG-29A, B

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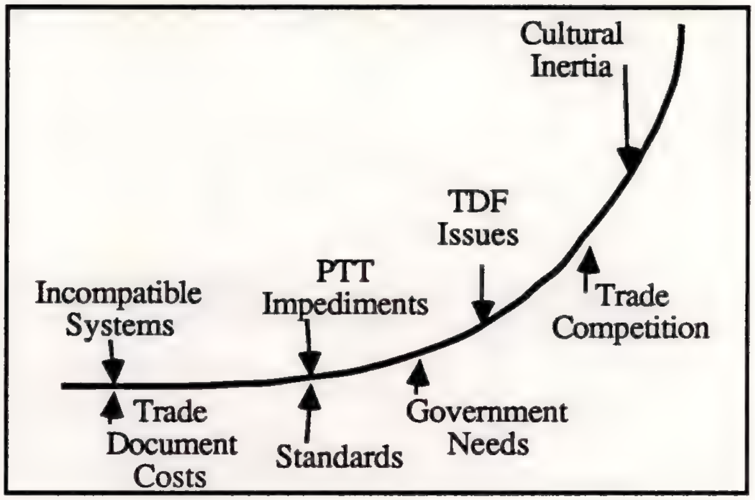
Factors Impacting EDI



INPUT

NOTES:

ECON-AG-30

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X.400
and
The Future of EDI

INPUT

NOTES:

ECON-AG-31

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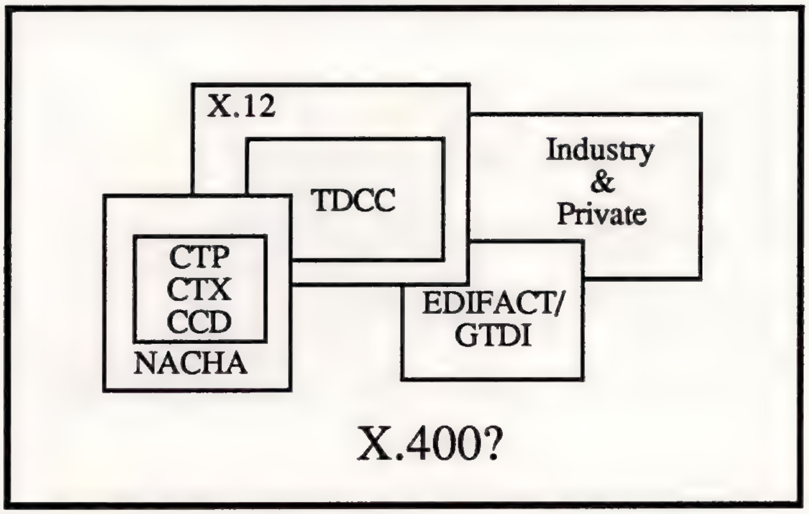
EDI Standards Relationships



X.12

TDCC

Industry
&
Private

CTP
CTX
CCD

NACHA

EDIFACT/
GTDI

X.400?

INPUT

NOTES:

ECON-AG-32

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EDI Growth Barriers

- Standards
- Trading Partner Agreement
- Internal Systems Integration
- Low-Cost Solution Need
- Network Interconnection/Connectivity

INPUT

NOTES:

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X.400 Definition

Electronic Messaging Service
Providing for the
Electronic Transmission of
Messages Containing
Text, Data, Image

INPUT

NOTES:

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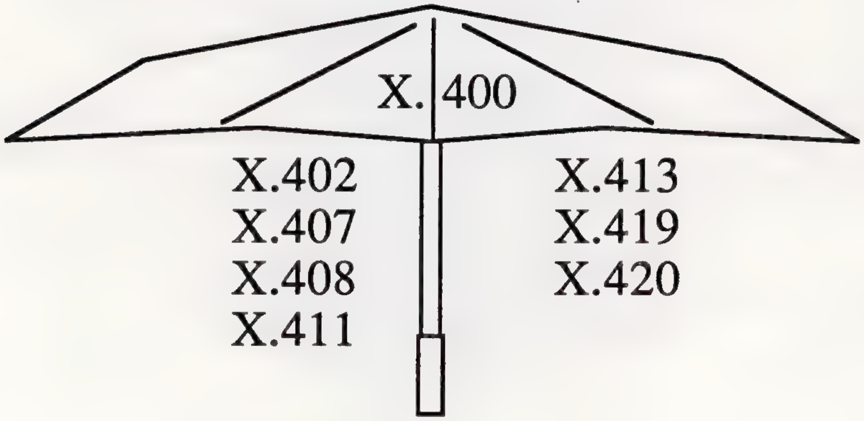
X.400 Elements

CCITT 1988 Recommendations



X.400

X.402
X.407
X.408
X.411

X.413
X.419
X.420

INPUT

NOTES:

ECON-AG-35

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Document Transfer Today

Text

Letters, Orders → Network

Data

Financial Data → Network

Support Documents → Network

INPUT

NOTES:

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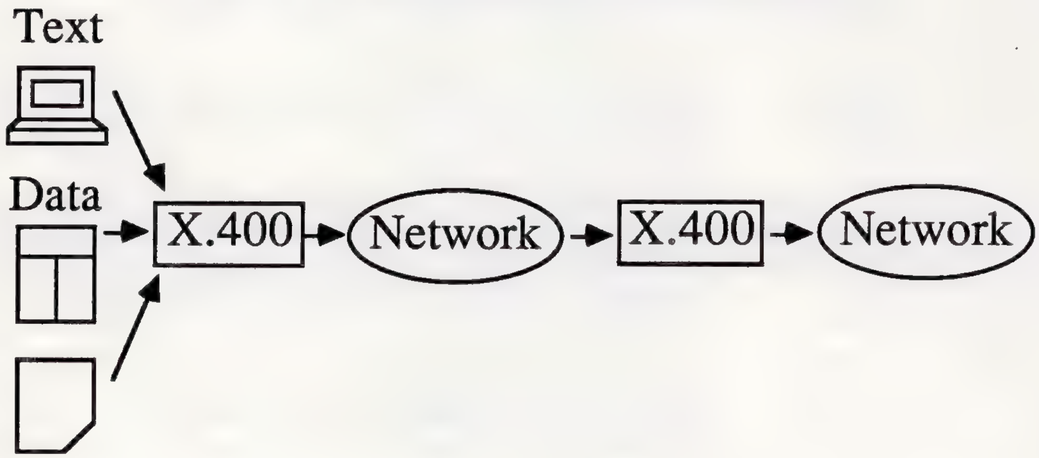
X.400 Document Transfer



INPUT

NOTES:

ECON-AG-37

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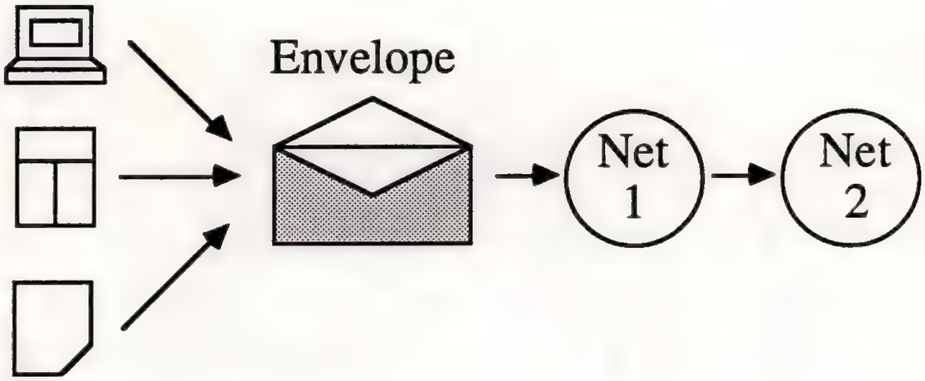
X.400 Document Transfer



INPUT

NOTES:

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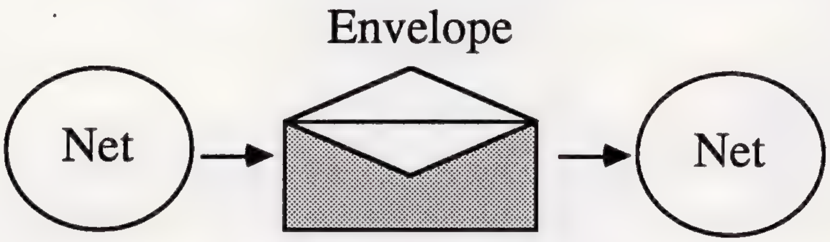
X.400 Document Transfer



- To Address
- From Address
- ID—Content 1
- ID—Content 2
- ID—Content 3
- Content Independent

INPUT

NOTES:

ECON-AG-39

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X.400 Benefits

- Integrate Networks
- Improve Internetwork Settlement
- Consistent Predictable Costs
- Improve Network Management
- Minimize Technical Barriers
- Domestic/International Integration
- Integrated Offerings

INPUT

NOTES:

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X.400 Key Applications

- EDI
- Electronic Funds Transfer
- Corporate Internal
- Document Distribution
  - Financial
  - Technical

INPUT

NOTES:

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X.400 Initiatives
Hardware Providers

- Unisys
- HP
- Wang
- CDC
- NCR
- DEC
- Olivetti
- IBM
- Data General
- Bull
- ICL
- Nixdorf
- Siemens
- Sun Microsystems
- Philips
- Xerox
- Alcatel
- Net Express

INPUT

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X.400 Initiatives
Carrier Services

- Pac Bell
- Telenet
- Tymnet
- AT&T
- Western Union
- CSC
- MCI
- Sprint
- GEIS

INPUT

NOTES:

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X.400 Initiatives
Software Providers

Supply Tech
I Comnet
Retix
Sydney
Novel
3COM
Banyan

INPUT

NOTES:

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X.400 Initiatives
Countries

U.K.
Germany
Switzerland
France
Other Europe

Korea
Japan
Hong Kong
Singapore
Australia
Other Asia

INPUT

NOTES:

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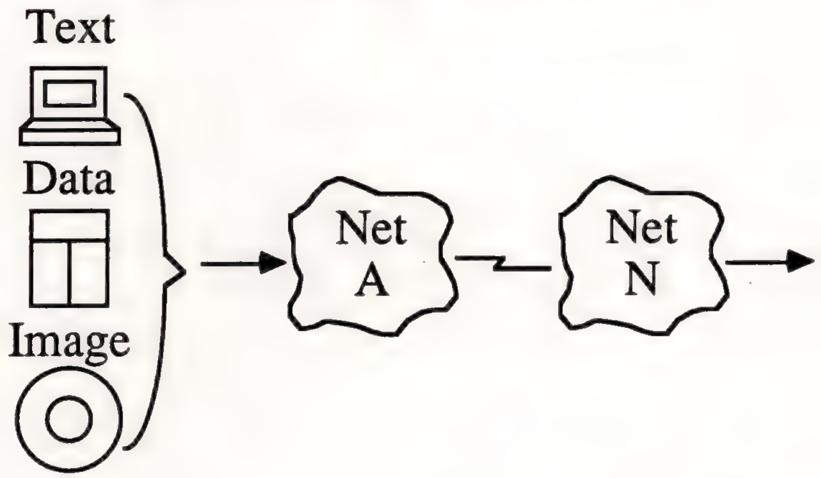
EDI in the 1990s



Text

Data

Image

Net A

Net N

INPUT

NOTES:

ECON-AG-46

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Alex Graham
Principal Consultant
INPUT

Alex Graham, a principal consultant, brings to INPUT more than 20 years of senior management experience in voice and data planning, network management planning, systems development, consulting, and marketing of telecommunications services. Additionally, he has wide-ranging experience in telecommunications, strategic planning, and development of customer support programs. He has been general manager of an international research and consulting firm, a senior consultant with Arthur D. Little, and a general manager for VISA International.

He holds an MA in international management from the American Graduate School and a BA in business from Grove City College.

EDI SERVICES ROUNDTABLE NETWORK INTERTRENDS

Sue Cole

Director
Worldwide Intercompany and
Logistics Business

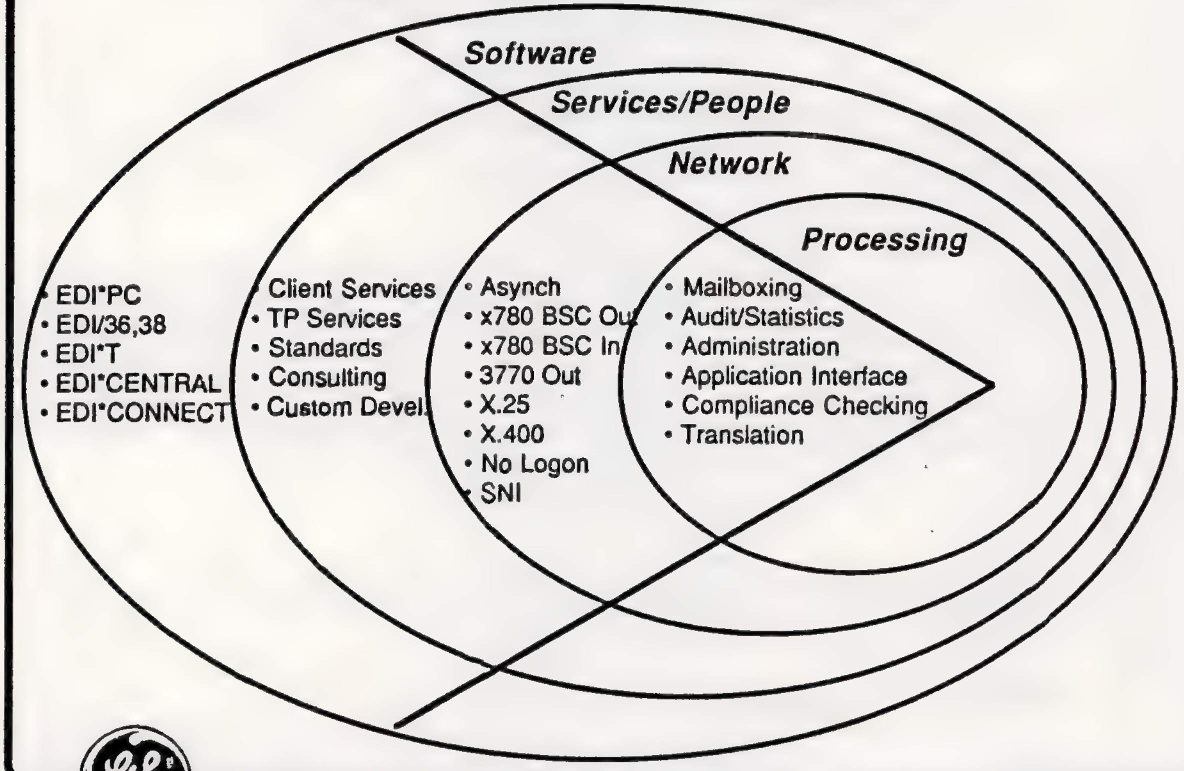
GEIS

INPUT®

WHAT MAKES GE UNIQUE?

- Largest Public EDI Clearinghouse
- Proven Trading Partner Assistance Program
- Full Line of Network Products, Software, and Services
- Recognized Industry and Standards Expertise
- Aggressive Value-Layering Program
- Global Reach

GE Information Services
EDI Products & Services



Software

- EDI*PC
- EDI/36,38
- EDI*T
- EDI*CENTRAL
- EDI*CONNECT

Services/People

- Client Services
- TP Services
- Standards
- Consulting
- Custom Devel.

Network

- Asynch
- x780 BSC Ou
- x780 BSC In
- 3770 Out
- X.25
- X.400
- No Logon
- SNI

Processing

- Mailboxing
- Audit/Statistics
- Administration
- Application Interface
- Compliance Checking
- Translation

INFORMATION SERVICES

AGENDA

- Overview of GE's EDI Products & Services
- What Makes GE Unique?
- What's New From GE?
- What's on the Horizon from GE?
- Focus on Special Issues

WHAT'S NEW FROM GE?

- Our Name: GE Information Services
- Some of Our Team
- Rapid Growth: 12%+ Per Month
- Second User Group Meeting & Survey
- New Strategic Alliances

    - Geographic
    - Industry-Oriented
    - Product/Service

- New Generation of PC & Mainframe Software

INFORMATION SERVICES

WHAT'S ON THE HORIZON FROM GE?

- Value-Layering Products
  - Payments
  - UPC Database
  - Design Documents
- Continued Product Development
- Large-Scale Program Support
- Extended Software Line
- Richer Alliance Profile

FOCUS ON SPECIAL ISSUES

- **Network Interconnect:**
    - New Pricing
    - Continued Willingness to Connect
    - Participation in X12 Task Group
- **Global Support:**
    - Renewed Focus in Europe
    - Starting Up in ASPAC
    - Established "Down Under" and UK
- **Integration Support**
    - Trained Field Staff
    - Expert Consultants
    - Alliances
- **Mass Trading Partner Implementations**
    - Productivity Improvements
    - Turnkey Systems?
    - Are We Dreaming?

GE Information
Services

GE INFORMATION SERVICES:
A FULL SERVICE EDI NETWORK PROVIDER

Sue A. Cole
Director,
Worldwide Intercompany and Logistics Business
GE INFORMATION SERVICES

Prior to her June, 1988 appointment, Sue Cole was Chicago-based manager of GEIS' Central and Southeast Sales and Services areas, serving in that role since late 1985. Ms. Cole joined GEIS in 1984 after 14 years with the Bell System; she held positions at Mountain Bell and AT&T.

She has worked with many major EDI clients, including Navistar, Caterpillar, Chrysler Motors, and Kodak. Her current responsibilities include marketing and technical management for EDI and industry-specific systems in trade and transportation, manufacturing, and retail industries.

The Denver native attended Colorado State University and the University of Denver.

EDI SERVICES ROUNDTABLE
NETWORK INTERTRENDS

Dave Hough

McDonnell Douglas

INPUT®

Level 1: User

LEVEL 1 - USER (TACTICAL)

- DISCOVERY OF EDI
- LIMITED NUMBER OF PARTNERS (10'S - 20'S)
- SINGLE DEPARTMENT
- SINGLE TRANSACTION
- OPTIONAL
- MORE TECHNICAL THAN BUSINESS

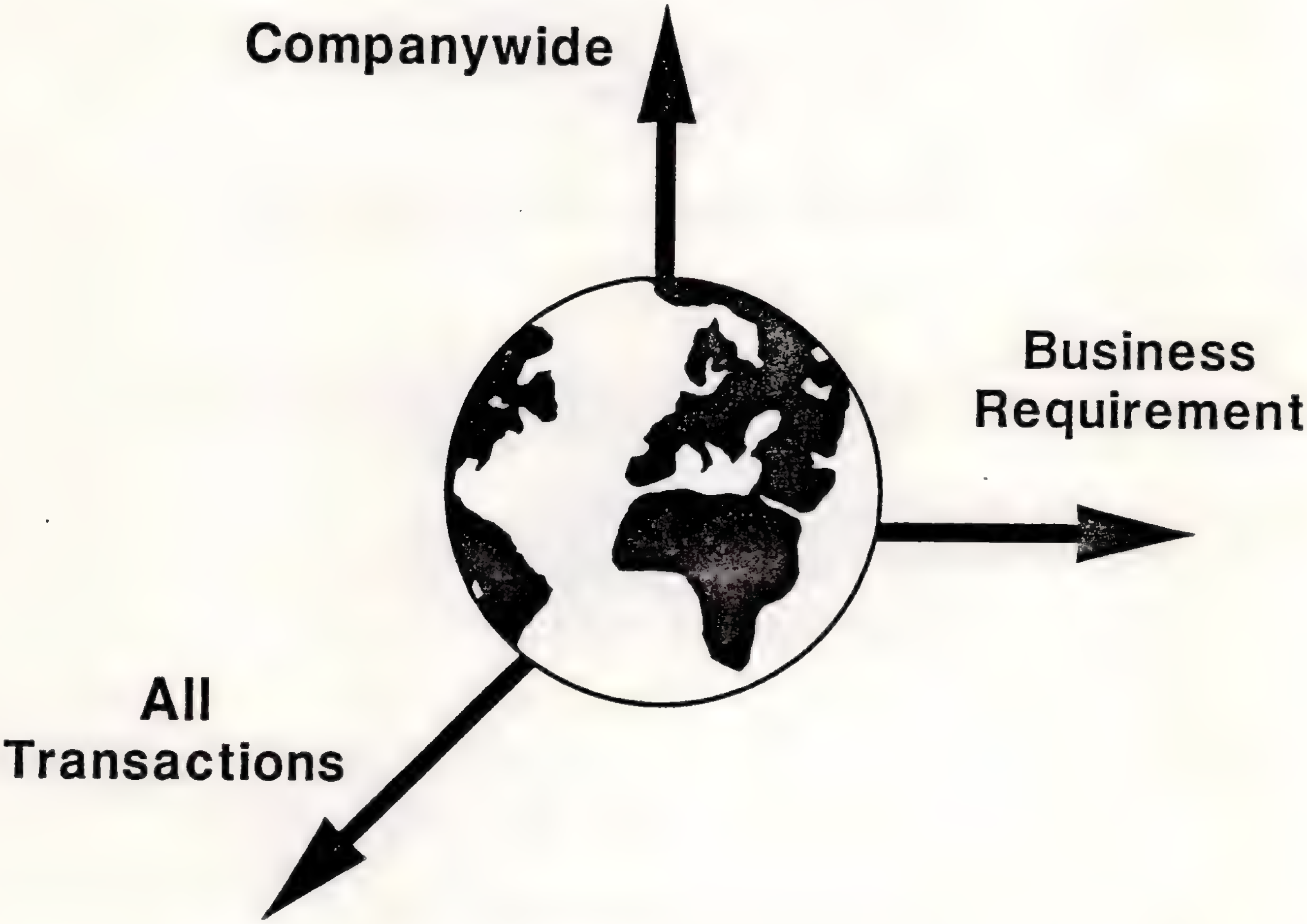
LEVEL 1 - THE CUSTOMER

- BUSINESS UNIT MANAGER
- MIS AT ARMS LENGTH
- THE USER IS ON A PC

LEVEL 1 - THE SERVICE

ROUTINE NETWORK BUSINESS

- MAILBOX
- COMMUNICATIONS
- IMPLEMENTATION PROCEDURE
- TECHNICAL EDUCATION
- SERVICE PRICING



Level 2: Program

LEVEL 2 - PROGRAM (STRATEGIC)

- CROSS INDUSTRY
- MULTIPLE DEPARTMENTS
- MULTIPLE TRANSACTIONS
- REQUIRED/CONTRACTUAL
- USERS BY THE HUNDREDS
- MORE BUSINESS THAN TECHNICAL

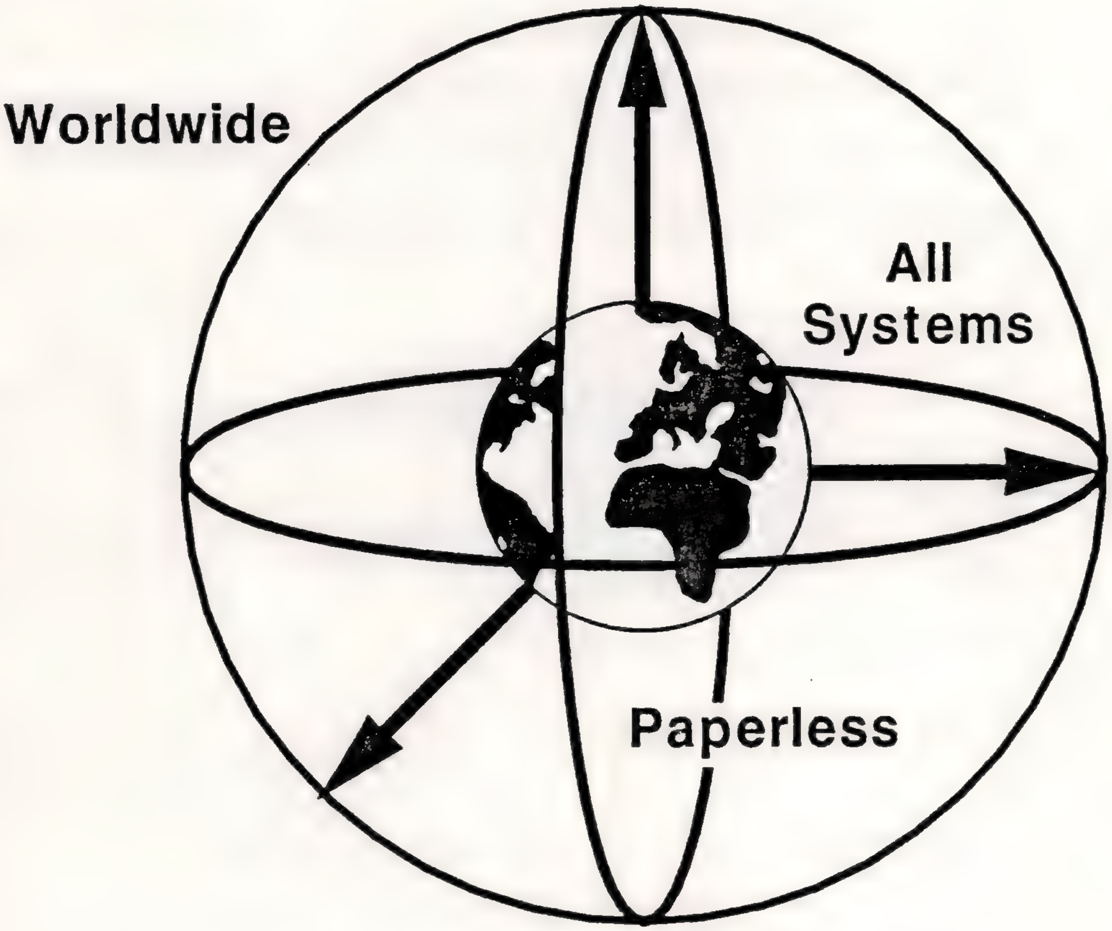
LEVEL 2 - THE CUSTOMER

- MULTIPLE MANAGERS
- MIS/COMMUNICATIONS
- FINANCE/COMPTROLLER

LEVEL 2 - THE SERVICE

CURRENT NETWORK CHALLENGE

- IMPLEMENTATION PROGRAM
- SEMINARS
- TELEMARKETING
- TRACKING
- PROGRAM PRICING
- MAJOR COMPANY PRICING PROGRAM



Level 3: System

LEVEL 3 - SYSTEM (CULTURE)

- WAY OF LIFE
- PAPER - GOODS - FUNDS
- GOAL TO MAXIMIZE EFFICIENCY
- CHANGE THE WAY TO DO BUSINESS
- RESTRUCTURE CORPORATE FUNCTIONS
- EQUALLY BUSINESS AND TECHNICAL

LEVEL 3 - THE CUSTOMER

- SENIOR MANAGEMENT
- CEO
- BOARD OF DIRECTORS

LEVEL 3 - THE SERVICE

ON THE HORIZON

- CONSULTING
- SYSTEM DESIGN

David A. Hough
McDONNELL DOUGLAS

Dave Hough transferred to the McDonnell Douglas Electronic Data Interchange Systems company as it was being formed from the acquisition of Tymshare Corporation in 1984. Since then he has filled a variety of customer and market-oriented positions, including business coordination, strategic planning, and membership on ANSI X.12 Subcommittee D.

An experienced manager, he was on special assignment in 1987 to study corporatewide cultural change. With his return to the EDI Systems Company this year, he brought a new understanding of EDI as a "creator of change." He is using this point of view in his current assignment as Manager of Implementation Programs.

Dave is a retired U. S. Coast Guard officer with a wide range of operational, engineering, and business experience. He is a registered professional engineer, a certified plant engineer, and has written numerous articles and publications on engineering, data processing, EDI applications and strategies, and organizational development.

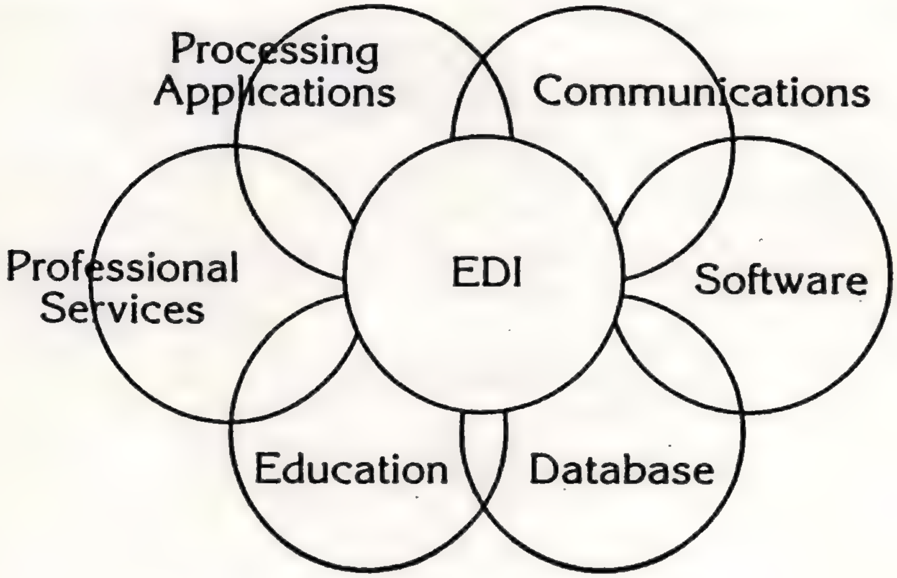
EDI SERVICES ROUNDTABLE NETWORK INTERTRENDS

William Plumb

President

Sterling Software
ORDERNET Services Division

ORDERNET Services focus today



Processing Applications

Communications

Professional Services

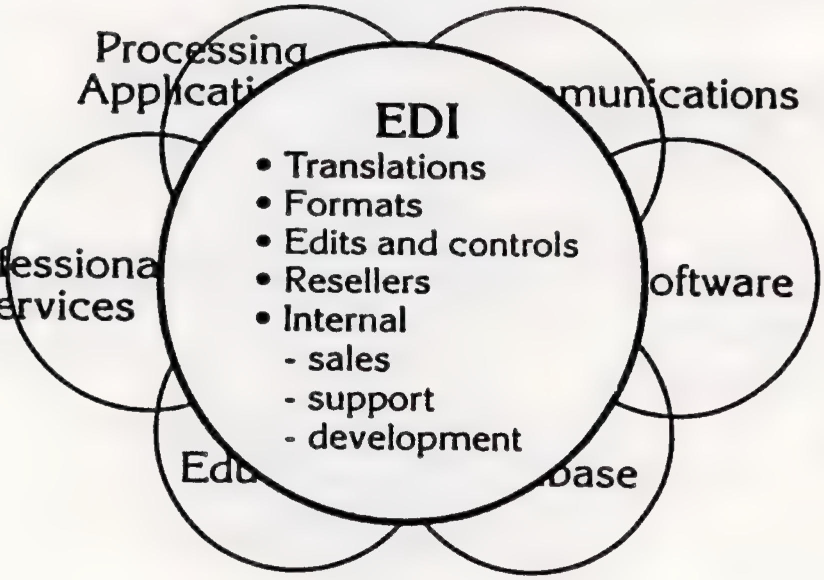
EDI

Software

Education

Database

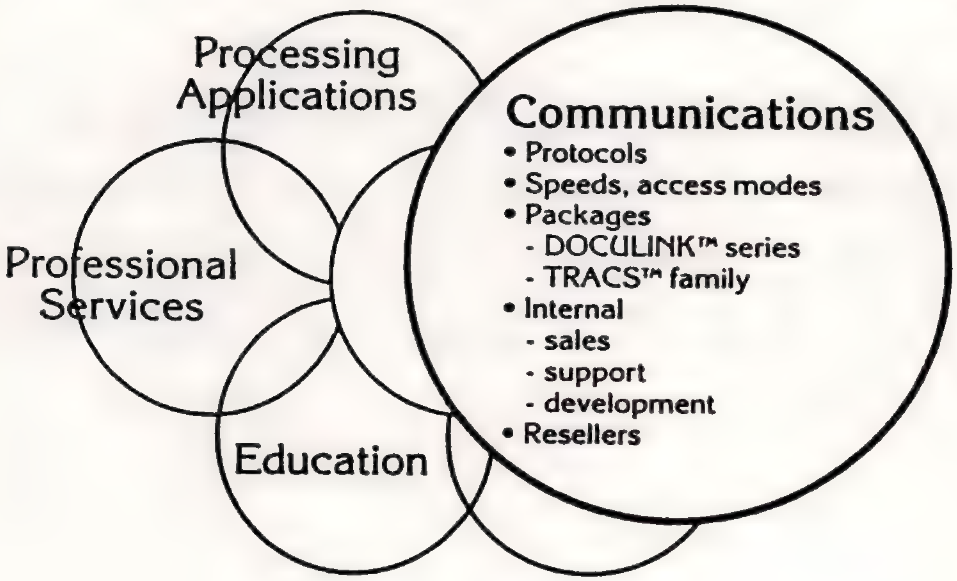
ORDERNET Services focus today



EDI

- Translations
- Formats
- Edits and controls
- Resellers
- Internal
  - sales
  - support
  - development

ORDERNET Services focus today



Processing Applications

Professional Services

Education

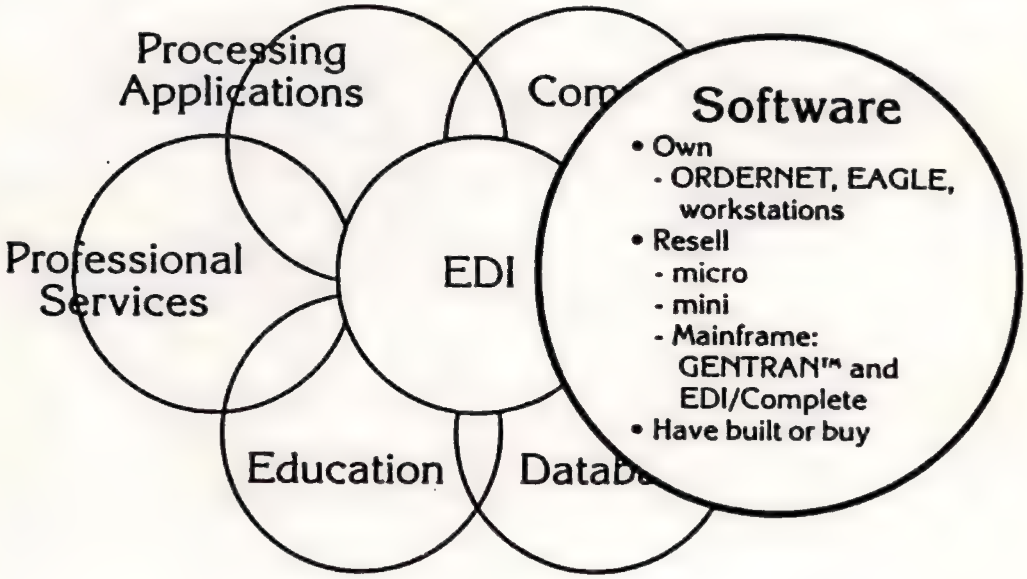
Communications

- Protocols
- Speeds, access modes
- Packages
  - DOCULINK™ series
  - TRACS™ family
- Internal
  - sales
  - support
  - development
- Resellers

Internetworking

ORDERNET Services supports EDI communications for its customers whether or not their trading partner(s) also hold an ORDERNET mailbox

ORDERNET Services focus today



Processing Applications

Com

Professional Services

EDI

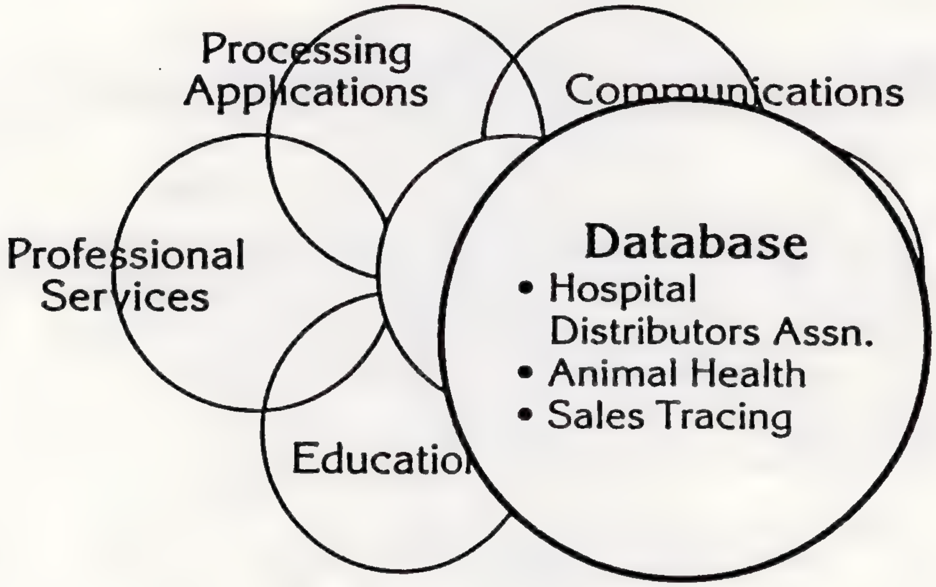
Education

Datab

Software

- Own
  - ORDERNET, EAGLE, workstations
- Resell
  - micro
  - mini
  - Mainframe: GENTRAN™ and EDI/Complete
- Have built or buy

ORDERNET Services focus today



Processing Applications

Communications

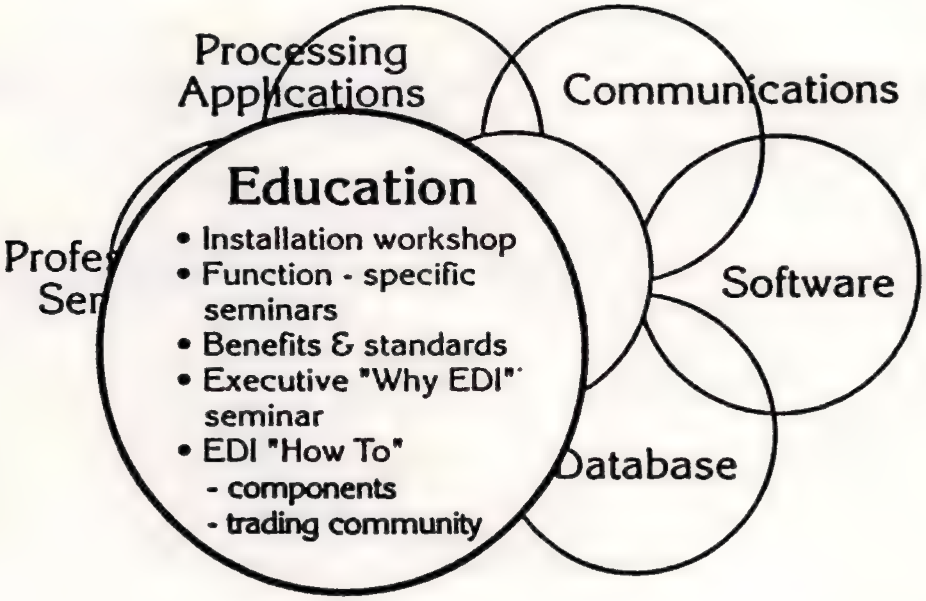
Professional Services

Educatio

Database

- Hospital Distributors Assn.
- Animal Health
- Sales Tracing

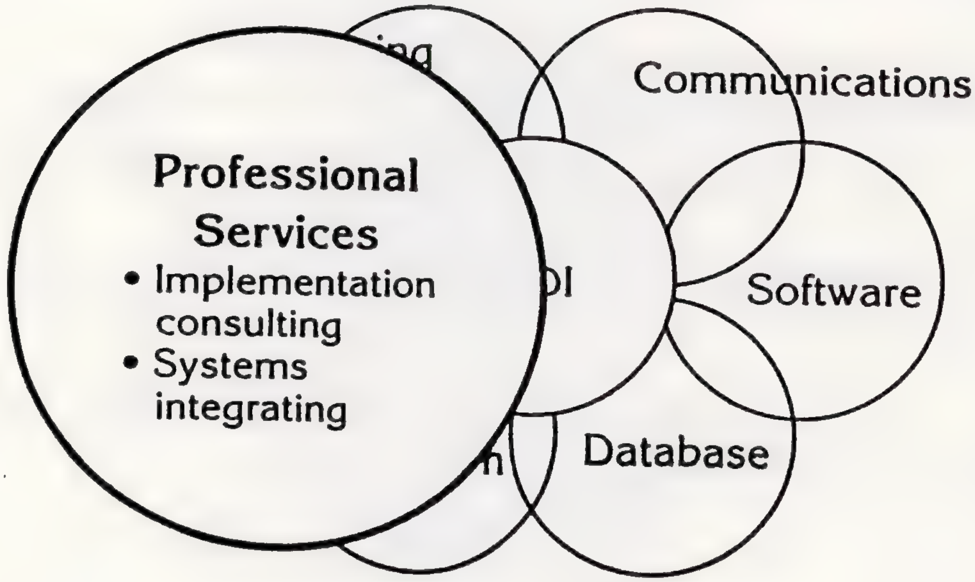
ORDERNET Services focus today



Education

- Installation workshop
- Function - specific seminars
- Benefits & standards
- Executive "Why EDI" seminar
- EDI "How To"
  - components
  - trading community

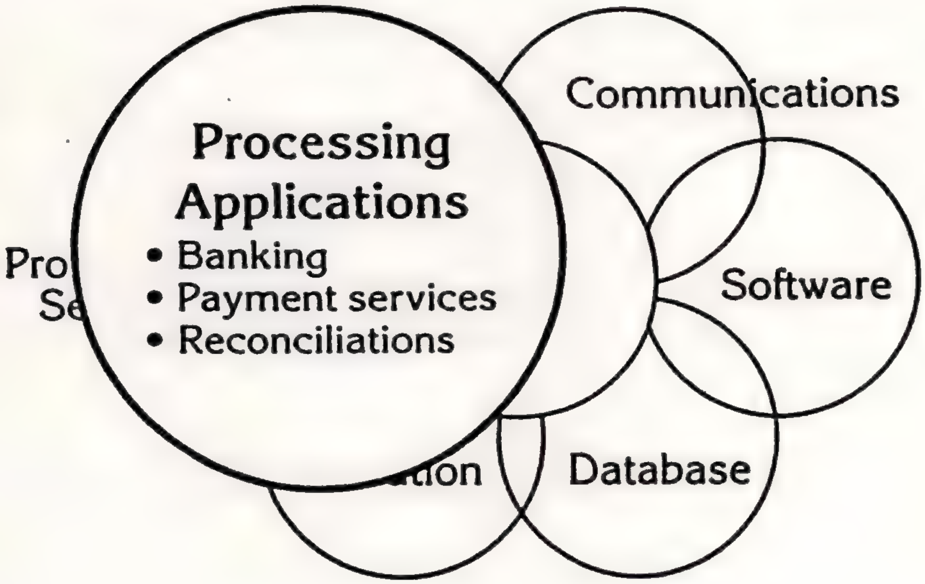
ORDERNET Services focus today



Professional Services

- Implementation consulting
- Systems integrating

ORDERNET Services focus today



Communications

Processing Applications
- Banking
- Payment services
- Reconciliations

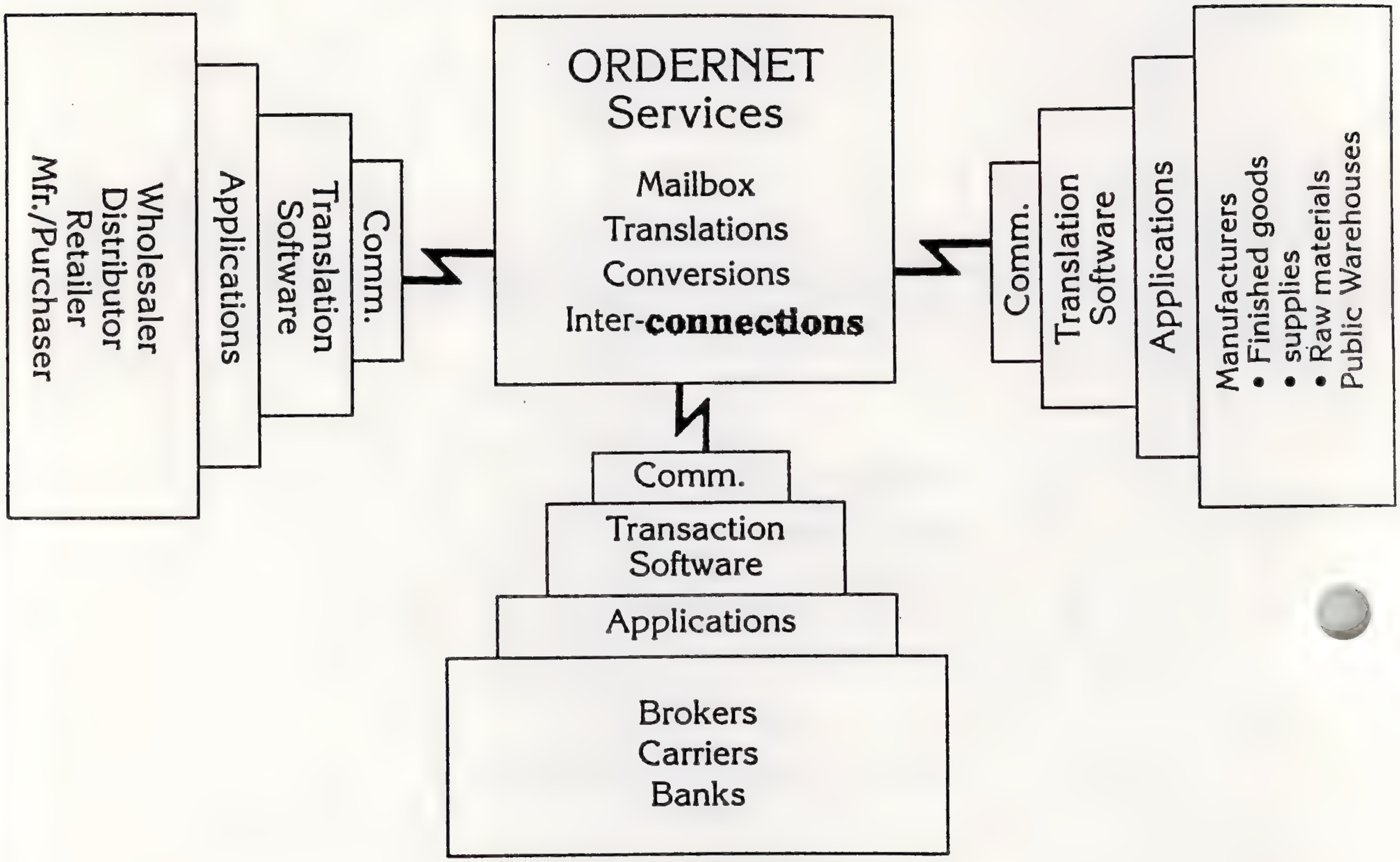
Pro
Se

Software

ation

Database

The EDI focus in practice



Wholesaler
Distributor
Retailer
Mfr./Purchaser

Applications

Translation
Software

Comm.

ORDERNET
Services

Mailbox
Translations
Conversions
Inter-**connections**

Comm.

Translation
Software

Applications

Manufacturers
- Finished goods
- supplies
- Raw materials

Public Warehouses

Comm.

Transaction
Software

Applications

Brokers
Carriers
Banks

Future focus

Strategic expansion of EDI services through logistics to include not only purchasing transactions but distribution, intermodal transportation, and more

Logistics

Tracking information flow from manufacturer to consumer with all steps involved: raw materials, MRP, customer services, warehousing, order entry, transportation, distribution, proof of delivery, etc.

Potential EDI logistics service customers

- brokers
- carriers
- public warehouses
- raw materials vendors
- packers
- manufacturers
- wholesalers
- financial institutions
- retailers
- et al. (open ended)

Telenet/ORDERNET Services

Telemail®/EDI integration

EDI Intertrends

- interstate
- international
- intergalactic
- interconnect
- interference
- inter alia

They're heeeeere!

- X12
- EDIFACT
- EDIMAC (Dr. Alfred Shumway)

William D. Plumb
President
STERLING SOFTWARE, ORDERNET SERVICES DIVISION

As president of ORDERNET Services, Bill Plumb heads the world's first electronic data interchange service provider, established under his leadership and providing live EDI services to the business community since 1978.

ORDERNET Services began as a division of Informatics General Corporation, which Mr. Plumb joined in 1974 with an extensive background in distribution line management. In 1985, Informatics merged with Sterling Software, Inc., a major producer of applications and systems software. As part of the Sterling corporate structure, ORDERNET Services has continued to record vigorous annual growth.

Beginning his career with American Stores Company, a major retail grocery chain, Plumb gained experience in store operations, purchasing, buying systems design and implementation, organizational development, and warehouse management. He opened and managed, as a highly successful operation, the first centralized corporate distribution center for H&BA and general merchandise in the U.S.

Plumb then moved to a very large multidivision drug wholesaler, where, as director of operations, he had complete responsibility for corporate buying, warehousing, data processing, delivery, and labor relations.

After joining Informatics, Plumb established an industry marketing function that he headed as vice president, managed all consulting activities relating to systems installations and support; founded grocery and drug customer user groups, and conceived and developed the ORDERNET Services EDI operation.

Bill Plumb received his bachelor's degree from the University of Colorado and a master's degree from the University of Virginia, following a stint in the U.S. Marine Corps Air Wing.

EDI SERVICES ROUNDTABLE NETWORK INTERTRENDS

Harry Gaples
President
Kleinschmidt, Inc.

INPUT®

SPEECH TO: INPUT, EDI INTERTRENDS CONFERENCE
JULY 29, 1988
SAN FRANCISCO, CA
FILE: $DV1.HARRY.SPEECH5

I'D LIKE TO THANK VICTOR S. WHEATMAN AND INPUT FOR THE OPPORTUNITY TO SPEAK TO YOU TODAY. I WILL BEGIN BY TELLING YOU A LITTLE ABOUT KLEINSCHMIDT AND ITS INVOLVEMENT IN EDI AND THEN DISCUSS A TOPIC OF INCREASING CONCERN TO THE EDI USER COMMUNITY: EXCESSIVE AGGREGATE THIRD PARTY CHARGES.

KLEINSCHMIDT IS A SMALL, PRIVATELY OWNED, DEBT FREE, PROFITABLE COMPANY. SALES FOR OUR YEAR ENDING DECEMBER 31, 1987 WERE APPROXIMATELY $7,700,000. THIS WAS AN INCREASE OF 23% OVER THE THE PRIOR YEAR.

EACH OF US HAS A FEW MEASUREMENTS WHICH HE FEELS ARE IMPORTANT IN EVALUATING THE JOB HE DOES. I WOULD LIKE TO SHARE WITH YOU SOME OF THE MEASUREMENTS I USE.

ONE OF MY CONCERNS IS PRODUCTIVITY PER EMPLOYEE. I MEASURE THIS IN TERMS OF SALES PER EMPLOYEE. IN 1987, WE ACHIEVED SALES PER EMPLOYEE OF APPROXIMATELY $178,000.

EACH SPRING FORTUNE MAGAZINE PUBLISHES VARIOUS STATISTICS ABOUT ITS FORTUNE 500 COMPANIES. ONE OF THESE STATISTICS IS AVERAGE SALES PER EMPLOYEE FOR THE FORTUNE 500 COMPANIES. IN APRIL, THEY REPORTED THAT SALES PER EMPLOYEE FOR 1987 WAS $124,392.

YOU MAY CONCLUDE, AS I DO, THAT KLEINSCHMIDT EMPLOYEES ARE HIGHLY MOTIVATED. A REASON FOR THIS IS THAT THEY OWN THE

COMPANY. ALL SHARES OF KLEINSCHMIDT ARE OWNED BY ITS EMPLOYEES WE HAVE NO OUTSIDE INVESTORS.

ANOTHER OF MY CONCERNS IS TO MAKE SURE THAT WE ADEQUATELY INVEST IN THE FUTURE. THIS, OF COURSE, IS VERY HARD TO MEASURE. ONE SIMPLE YARDSTICK IS CAPITAL EXPENDITURES PER EMPLOYEE. IN 1987 WE SPENT NEARLY $12,000 PER EMPLOYEE IN CAPITAL EQUIPMENT. APPROXIMATELY 80 PERCENT OF THIS WAS INVESTED IN COMPUTER AND COMMUNICATIONS EQUIPMENT.

OUR COMPUTER SYSTEM IS A SIX PROCESSOR TANDEM TXP. WE CHOSE IT BECAUSE IT CAN BE OPERATED IN A FAULT TOLERANT MANNER. HARDWARE FAILURE CAN BE TRANSPARENT TO ITS USERS. THIS SPRING, FOR EXAMPLE, WE HAD A DISK DRIVE FAILURE. THE READ/WRITE HEAD WOULD NOT MOVE. THIS FAILURE WAS TRANSPARENT TO OUR USERS BECAUSE ALL OF OUR DATA IS WRITTEN TO TWO DISK DRIVES. THE DISK PROCESS IS SMART ENOUGH TO RECOGNIZE THE BAD DRIVE, MARK IT AS BAD AND USE ONLY THE REMAINING GOOD DRIVE IN THE MIRRORED PAIR.

THE FAULT TOLERANT NATURE OF THE TANDEM TXP PERMITS VERY HIGH SYSTEM AVAILABILITY. WE HAVE BEEN VERY FORTUNATE. WE HAVE NOT HAD A HARDWARE FAILURE THAT REDUCED SYSTEM AVAILABILITY.

OUR APPLICATION SOFTWARE IS DESIGNED TO PROCESS DATA AS WE RECEIVE IT. OUR FIRST STEP IN THIS PROCESS IS TO RECORD ON DISK THE DATA AS RECEIVED. THIS GIVES US A COPY OF WHAT WE RECEIVED. THE NEXT STEP IS TO ANALYZE THE INCOMING MESSAGE AND DETERMINE HOW IT SHOULD BE HANDLED. THE DATA MAY HAVE ARRIVED, FOR EXAMPLE, IN A STANDARD ANSI FORMAT. WHEN THE ULTIMATE RECEIVER OF THE DATA WISHES TO RECEIVE IT IN THE SAME ANSI FORMAT, WE EITHER PUT IT INTO HIS MAILBOX FOR LATER DELIVERY OR DELIVER IT

IMMEDIATELY. FOR TIME SENSITIVE DATA SUCH AS BILLS OF LADING, IMMEDIATELY DELIVERY IS VERY IMPORTANT. AFTER DELIVERY, THE MESSAGE TRANSMITTED IS RECORDED ON DISK AS PRESENTED TO THE COMMUNICATION PROGRAM. THUS, WE HAVE BACKUP COPIES OF WHAT WE RECEIVED AND WHAT WE TRANSMITTED.

SOME USERS SEND US DATA IN PROPRIETARY FORMATS. AFTER RECORDING THE DATA ON DISK, THE COMMUNICATION PROGRAM HANDS OFF THE DATA TO A PARSER. THE PARSER DETERMINES WHETHER THE INCOMING DATA NEEDS TO BE TRANSLATED TO AN INTERMEDIATE STANDARD FORMAT AND HANDS IT OFF TO AN APPROPRIATE TRANSLATION PROGRAM. AFTER TRANSLATION, THE DATA IS RETURNED TO THE PARSER FOR FURTHER HANDLING. THE PARSER MAY, FOR EXAMPLE, DETERMINE THAT THE INTERMEDIATE STANDARD FORMAT IS NOT COMPATIBLE WITH THE ULTIMATE DESTINATION. WHEN THIS OCCURS, THE PARSER WILL HAND OFF THE DATA TO ANOTHER PROGRAM FOR TRANSLATION TO THE FORMAT REQUIRED. AFTER COMPLETION OF THIS TRANSLATION, THE DATA WILL AGAIN BE RETURNED TO THE PARSER FOR FURTHER HANDLING. FINALLY THE PARSER WILL DELIVER THE DATA TO A MAILBOX OR TO A COMMUNICATION PROGRAM FOR IMMEDIATE DELIVERY.

KLEINSCHMIDT BEGAN ITS EDI ACTIVITIES IN 1980 BY COLLECTING RAILROAD CAR LOCATION MESSAGES (CLM'S) FOR SHIPPERS. OUR COMPETITION AT THAT TIME WAS TYMSHARE, NOW MCDONNELL DOUGLAS, AND HONEYWELL. OVER THE YEARS, COMPETITION INTENSIFIED. NORTH AMERICAN CAR, GENERAL ELECTRIC AND RAILINC BEGAN PROVIDING CLM SERVICES. TODAY, THERE ARE THREE SURVIVORS: RAILINC, MCDONNELL DOUGLAS AND KLEINSCHMIDT. KLEINSCHMIDT IS THE LEADER. WE SERVE APPROXIMATELY TWO-THIRDS OF ALL FIRMS THAT USE THIRD PARTIES FOR

COLLECTING CLM'S.

IN THE MID 80'S KLEINSCHMIDT EXPANDED ITS EDI ACTIVITIES TO INCLUDE TRANSACTION SETS DEFINED BY STANDARD GROUPS SUCH AS TDCC AND ANSI. MANY OTHER FIRMS SAW OPPORTUNITIES AS THIRD PARTY SERVICE PROVIDERS FOR TDCC AND ANSI TRANSACTIONS AND ENTERED THE MARKET. BASED ON OUR EXPERIENCE, THE CHARACTER VOLUME PROCESSED BY THIRD PARTIES IS GROWING RAPIDLY. IN 1987 OUR GROWTH WAS APPROXIMATELY 163 PERCENT. IN THE FIRST SIX MONTHS OF 1988 THE CHARACTERS WE PROCESSED GREW AN ADDITIONAL 35 PERCENT.

THE GROWTH IN EDI, IN MY OPINION, HAS BEEN MADE POSSIBLE BY THE STANDARDS DEVELOPED AND DOCUMENTED BY VARIOUS STANDARDS ORGANIZATIONS AND INDUSTRY GROUPS. THEY SERVE AS COMMON POINTS OF REFERENCE TO WHICH EVERYONE HAS ACCESS. THE PUBLISHED STANDARDS ARE TO EDI WHAT THE DICTIONARY IS TO THE ENGLISH LANGUAGE. THE STANDARDS DEFINE A TRANSACTION SET IN TERMS OF SEGMENTS AND HOW THE SEGMENTS IN A SET ARE ORDERED. EACH SEGMENT CONSISTS OF FIELDS. THE JOINT ANSI/TDCC DATA DICTIONARY SHOWS US WHAT VALUES ARE ALLOWED IN PARTICULAR FIELDS IN A SEGMENT. THE DOCUMENTED STANDARDS, IN EFFECT, PERMIT FIRMS TO MORE EASILY TAKE ADVANTAGE OF THE BENEFITS OF EDI. ON BEHALF OF KLEINSCHMIDT, I THANK THE STANDARDS ORGANIZATIONS AND INDUSTRY GROUPS FOR THEIR ACCOMPLISHMENTS.

MY TALK TODAY IS DIVIDED INTO TWO SEPARATE PARTS. THE FIRST PART COVERED KLEINSCHMIDT AND ITS INVOLVEMENT IN EDI. MY SECOND PART COVERS A TOPIC THAT IS OF INCREASING CONCERN TO THE EDI USER COMMUNITY: EXCESSIVE AGGREGATE THIRD PARTY CHARGES.

BEFORE GETTING TOO DEEPLY INTO THIS, I WISH TO SHARE WITH YOU A LAYMAN'S VIEW OF THE DEVELOPMENT OF EDI.

THIS SPRING I HAD THE PLEASURE OF TAKING MY DAUGHTER TO LONDON DURING SPRING BREAK. ALTHOUGH WE HAVE OUR OWN INTERESTS, IT WAS EASY TO FIND THINGS THAT BOTH OF US LIKED DOING TOGETHER. IF I HAD TAKEN MY WHOLE FAMILY, ON THE OTHER HAND, WE WOULD HAVE SPENT MANY HOURS NEGOTIATING WHAT THE FAMILY SHOULD DO AS A GROUP.

EDI IS MUCH LIKE MY FAMILY. IT IS EASY FOR TWO FIRMS TO MUTUALLY AGREE ON PROCEDURES FOR TRANSMITTING BUSINESS DOCUMENTS. HOWEVER, WHEN MANY FIRMS ARE INVOLVED, ACHIEVING AGREEMENT AMONG THE VARIOUS PARTIES BECOMES PROGRESSIVELY MORE DIFFICULT. FORTUNATELY, STANDARDS HAVE BEEN AND ARE BEING DEVELOPED THAT DEFINE TRANSACTION SETS USED BY BUSINESSES IN THEIR DAY TO DAY OPERATIONS.

WITH STANDARD FORMATS DEVELOPED, MANY FIRMS BEGAN MAPPING THEIR DATA INTO STANDARD FORMATS USED BY THE EDI COMMUNITY. THIS, OF COURSE, IS NOT AN EASY TASK FOR ALL FIRMS. SOFTWARE FIRMS RECOGNIZED THIS AND BEGAN OFFERING GENERAL PURPOSE TRANSLATION PROGRAMS FOR CONVERTING DATA TO STANDARD FORMATS USED IN EDI.

FIRMS TRYING TO DO EDI WITH MANY OTHER FIRMS QUICKLY DISCOVERED OTHER PROBLEMS SUCH AS SUPPORTING VARIOUS COMMUNICATION PROTOCOLS AND LINE SPEEDS. MANY FIRMS DECIDED TO SUBCONTRACT THIS WORK TO THIRD PARTY EDI SERVICE PROVIDERS SUCH AS KLEINSCHMIDT, MCDONNELL DOUGLAS, STERLING SOFTWARE, GENERAL ELECTRIC, CONTROL DATA, TRANSETTLEMENTS AND OTHERS. FIRMS

ENVISIONED THAT THE THIRD PARTIES WOULD BE ACTING ON THEIR BEHALF AND WOULD BE TRANSPARENT TO THEIR TRADING PARTNERS. COMMUNICATIONS FROM A FIRM TO ITS TRADING PARTNER WOULD EITHER BE:

1. DIRECT FROM THE FIRM TO ITS TRADING PARTNER,
2. FROM THE FIRM TO ITS THIRD PARTY AND THEN TO THE TRADING PARTNER,
3. FROM THE FIRM TO THE TRADING PARTNER'S THIRD PARTY AND THEN TO THE TRADING PARTNER OR
4. FROM THE FIRM TO ITS THIRD PARTY, THEN TO THE TRADING PARTNER'S THIRD PARTY AND FINALLY TO THE TRADING PARTNER.

EDI USERS VIEWED THIRD PARTIES MUCH AS THEY DID THE TELEPHONE SYSTEM. IN THE TELEPHONE WORLD, EACH PERSON CONTRACTS WITH HIS LOCAL TELEPHONE COMPANY AND A LONG DISTANCE CARRIER OF HIS CHOICE. HE CAN THEN CALL ANY OTHER PERSON WHO HAS A PHONE. THE PARTY CALLED COULD, OF COURSE, BE CONTRACTED WITH A DIFFERENT LOCAL PHONE COMPANY AND A DIFFERENT LONG DISTANCE CARRIER. NEVERTHELESS, THE ORIGINATOR OF A PHONE CALL WILL RECEIVE INVOICES ONLY FROM ITS LOCAL PHONE COMPANY AND THE LONG DISTANCE CARRIER IT HAS CHOSEN.

UNFORTUNATELY, NOT ALL EDI THIRD PARTY SERVICE PROVIDERS WILL ACCEPT MESSAGES DESTINED TO THEIR CUSTOMERS WHEN THE ORIGINATOR OF THE MESSAGE IS NOT THEIR CUSTOMER. SHOULD YOU DESIRE TO SEND MESSAGES TO THEIR CUSTOMERS YOU CURRENTLY MUST ALSO BECOME ONE OF THEIR CUSTOMERS. THE RESULT, IF LEFT UNCHECKED, WILL BE THAT

VIRTUALLY ALL EDI USERS WILL BE CONTRACTED WITH MULTIPLE AND PERHAPS ALL LARGE EDI THIRD PARTIES. IN THE LONG RUN THIS WILL BE VERY EXPENSIVE TO EDI USERS.

THE MAY 1988 ISSUE OF THE "AMERICAN SHIPPER" ADDRESSES THIS. IT POINTS OUT THAT THIRD PARTY NETWORKS HAVE GAINED INCREASING RECOGNITION AS PRACTICAL VEHICLES FOR SENDING AND RECEIVING DATA. BUT COMPANIES USING THIRD PARTY NETWORKS CANNOT ASSUME THEIR BUSINESS PARTNERS ARE TIED INTO THE SAME NETWORKS. AND SO THEY ENCOUNTER THE CHALLENGE OF NETWORK BRIDGING.

THE ARTICLE FURTHER POINTS OUT THAT AS THE DEMAND FOR NETWORKS HAS GROWN, SO HAS THE FIELD OF NETWORK PROVIDERS. TO KEEP ONE STEP AHEAD OF THE COMPETITION, NETWORK PROVIDERS ARE DOING THEIR BEST TO COME UP WITH ENTICING MARKETING PROGRAMS THAT SET THEM APART FROM THEIR RIVALS.

A THIRD PARTY MAY, FOR EXAMPLE, OFFER A SELECTED SET OF USERS THEIR EDI SERVICES AT NO COST, OR AT A VERY LOW COST, PROVIDED THESE USERS TELL THEIR TRADING PARTNERS TO SEND THEIR EDI TRANSACTIONS THROUGH THAT PARTICULAR THIRD PARTY. THAT THIRD PARTY THEN INFORMS THESE FIRMS' TRADING PARTNERS THAT THEY MUST ENTER INTO A CONTRACT WITH IT, OR THEY CAN'T SEND DATA THROUGH IT. THUS, A TRADING PARTNER MUST ENTER INTO A CONTRACT WITH THAT THIRD PARTY EVEN THOUGH IT HAD ALREADY SELECTED ANOTHER THIRD PARTY FOR ALL OF ITS OTHER EDI TASKS. THE BOTTOM LINE IS INCREASED COSTS TO THE EDI USER COMMUNITY.

IN CANADA, THERE IS A VERY LARGE COMMUNICATION COMPANY THAT IS OFFERING THIRD PARTY EDI SERVICES. IT HAS ESTABLISHED THE POLICY THAT IT WILL ONLY INTERCHANGE DATA WITH OTHER THIRD

PARTIES USING THE X.400 PROTOCOL. TO MY KNOWLEDGE, NO COMPUTER MANUFACTURERS CURRENTLY OFFER X.400 SOFTWARE. FURTHERMORE, VIRTUALLY NO FIRMS TODAY OFFER X.400 SOFTWARE. SO THERE IT IS. ALL FIRMS USING THIS THIRD PARTY EFFECTIVELY REQUIRE THEIR TRADING PARTNERS TO CONTRACT WITH THIS THIRD PARTY. THE BOTTOM LINE IS AGAIN INCREASED COST TO THE EDI USER COMMUNITY.

THE APRIL 12, 1988 MINUTES OF THE EDI VENDOR MEETING OF THE EDI COUNCIL OF CANADA STATE, AND I QUOTE, "THE EDI COUNCIL OF CANADA BOARD OF DIRECTORS HAS AGREED THAT THE LACK OF EFFECTIVE INTERCONNECTION IS A MAJOR INHIBITOR TO THE FUTURE DEVELOPMENT OF EDI IN CANADA."

MANY THIRD PARTIES SAY THEY SUPPORT THE OPEN SYSTEM CONCEPT FOR NETWORK BRIDGING. IT IS IMPORTANT, HOWEVER, TO FIND OUT WHAT THEY MEAN BY THEIR STATEMENT. A LARGE U.S. THIRD PARTY, FOR EXAMPLE, STATES THAT IT SUPPORTS THE OPEN SYSTEM CONCEPT FOR NETWORK BRIDGING. ITS PRICING STRUCTURE, HOWEVER, DISCOURAGES ITS CUSTOMERS FROM USING OPEN SYSTEM. IT IS MY UNDERSTANDING THAT THIS THIRD PARTY CHARGES ITS CUSTOMERS A SIGNIFICANT SETUP FEE FOR EACH CUSTOMER'S PARTNER THAT DESIRES NETWORK BRIDGING.

MEMBERS OF THE EDI USER COMMUNITY CAN TAKE STEPS TO PROTECT THEMSELVES FROM EXCESSIVE AGGREGATE THIRD PARTY CHARGES. AN EDI USER CAN, FOR EXAMPLE, REFUSE TO CONTRACT WITH THIRD PARTIES OTHER THAN THE THIRD PARTY OF ITS CHOICE. IN MY OPINION, THIS IS AN EFFECTIVE WAY OF AVOIDING EXCESSIVE AGGREGATE THIRD PARTY SERVICE PROVIDER CHARGES. FURTHERMORE, FIRMS THAT ARE UNABLE TO RECEIVE YOUR EDI TRANSACTIONS BECAUSE THEIR THIRD PARTY INSISTS THAT YOU BECOME THEIR CUSTOMER, MAY ENCOURAGE THEIR THIRD PARTIES

TO CHANGE THEIR POLICIES.

YOU, THE EDI USER, BY BEING AWARE OF NETWORK BRIDGING PROBLEMS AND THEIR ASSOCIATED COSTS TO YOU, CAN CONSIDER THEIR IMPACT DURING THE PROCESS OF SELECTING YOUR THIRD PARTY.

IN CLOSING I WISH TO THANK YOU FOR BEING ATTENTIVE LISTENERS. I HOPE MY COMMENTS HAVE BEEN BOTH INFORMATIVE AND USEFUL.

Harry S. Gaples
President
KLEINSCHMIDT, INC.

Mr. Gaples began his career at Control Data Corporation as a programmer, product planner, acquisition negotiator, acquisition integrator, and ultimately as president of Croname, a subsidiary of Commercial Credit Corporation.

In the early 1970s, he joined SCM Corporation, first as president of the Medlabs subsidiary, and then as president of the Kleinschmidt Division. Kleinschmidt provides turnkey computer systems, software services, and third-party logistics and EDI services, in addition to spare parts for its line of tactical teletypewriters.

In 1986, the Kleinschmidt Division of SCM became an independent, employee-owned company.

EDI SERVICES ROUNDTABLE NETWORK INTERTRENDS

Beth Greenwood

First National Bank of Chicago

Stages of EDI Development

Awareness	Strategy/ Organizational Development	Feasibility Analysis	System Design	Test and Implementation
Stage 1	Stage 2	Stage 3	Stage 4	Stage 5

STAGE 1: AWARENESS

ISSUES:

- Status Of EDI - Internal And External
- Assessment Of EDI Readiness

PRODUCTS:

- Education Seminars
    - Topical
    - Technical
    - Senior Management Briefing

- Action Alert Workshop
    - Company Specific
    - Cross Functional
    - Action Plan Oriented

STAGE 2: STRATEGY/ORGANIZATIONAL DEVELOPMENT

ISSUES:

- Coordinated EDI Effort
- Top Management Commitment
- Cross Functional Effectiveness

PRODUCTS:

- EDI Strategy Development
  - Assess Readiness
  - Mobilize Resources
  - Identify Applications
  - Develop Strategy
- Senior Management Seminar
- Education Workshops For Potential EDI Application Areas

STAGE 3: FEASIBILITY ANALYSIS

ISSUES:

- Identify Transaction Time Line
- Identify And Select EDI Applications
- Quantify Costs And Benefits
- Trading Partner Selection

PRODUCTS:

- Application Costs/Benefit Evaluations
- EDI Opportunity Analysis
    - Document Transaction Flows
    - Assess EDI Priorities
    - Evaluate Prototypes
- Trading Partner Coordination

STAGE 4: DESIGN

ISSUES:

- Data Formats
- System Security
- Internal Systems Integration
- Communications
- Legal And Audit
- Software And Hardware
- Installation And Internal Test
- Training

PRODUCTS:

- EDI Payment System
- Technical Consulting For Design
- Technical Consulting For Development
- Technical Training
- Terms Model
- Bridging Utilities

STAGE 5: PILOT AND IMPLEMENTATION

ISSUES:

- "Marketing Plan" For Implementation
- Trading Partner Coordination
- Market Response

PRODUCTS:

- Design of Education And Training Programs
- Development Of Roll Out Strategy
- Market Research With Trading Partners

First Chicago EDI Consulting Products

- Education
- Action Alert Workshop
- EDI Strategy Development
- Feasibility Analysis
  - Evaluation of Applications
  - Cost/Benefit Analysis
- EDI Audit

Elizabeth A. Greenwood
Vice President and Client Manager
FIRST NATIONAL BANK OF CHICAGO

Ms. Greenwood is a Vice President and Client Manager responsible for the marketing, production and presentation of strategic study engagements including cash flow analysis, treasury information system studies, acquisition integration, and electronic data interchange design and implementation. Ms. Greenwood received her MBA from Northwestern University.

Prior to joining the bank, Ms. Greenwood managed a group responsible for consulting studies, marketing cash management services and product and refinement of cash management systems for brokerage firms, government entities and national corporations. She has also spoken at many cash management seminars.

LATE TO THE PARTY
OR JUST IN TIME?

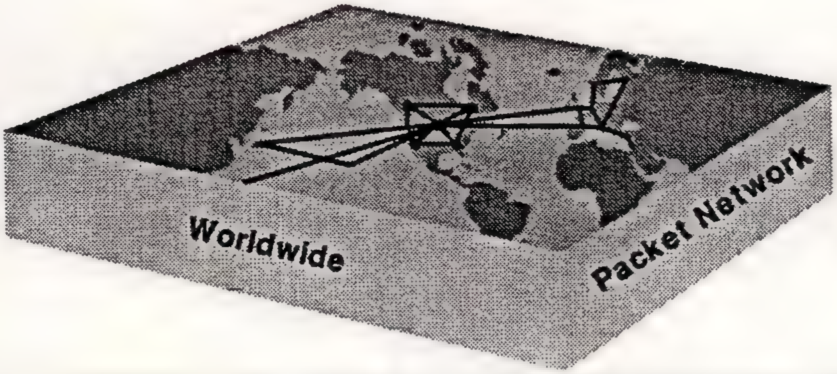
Michael Mansouri

Telenet

INPUT®

Telenet

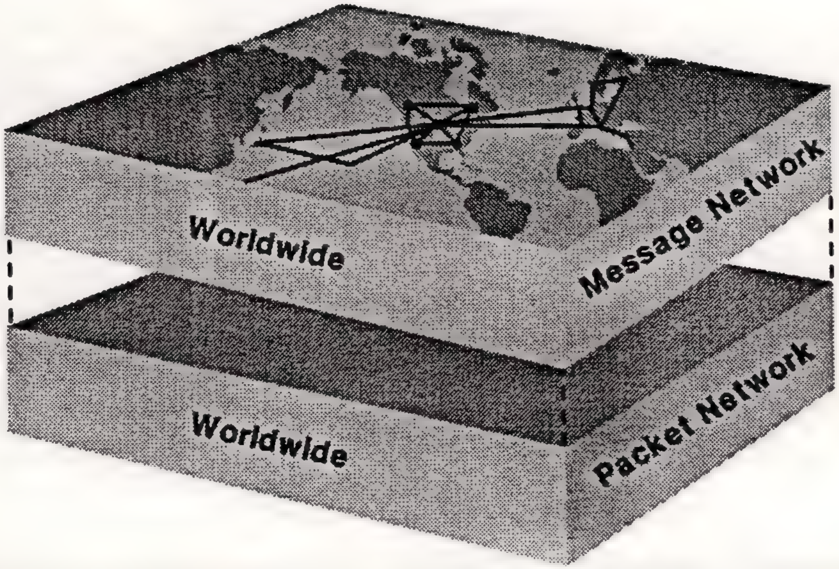
Existing Worldwide Packet Network



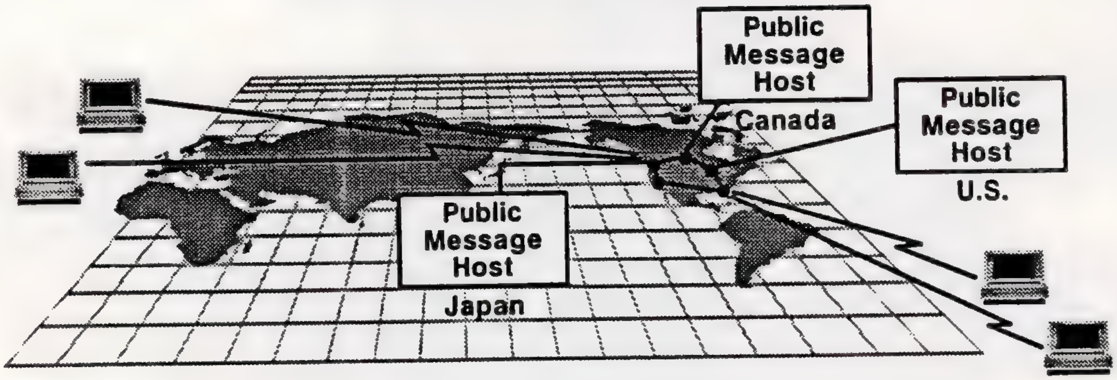
Global Data Network

Telenet

Emerging Worldwide Message Network



Global Messaging Network

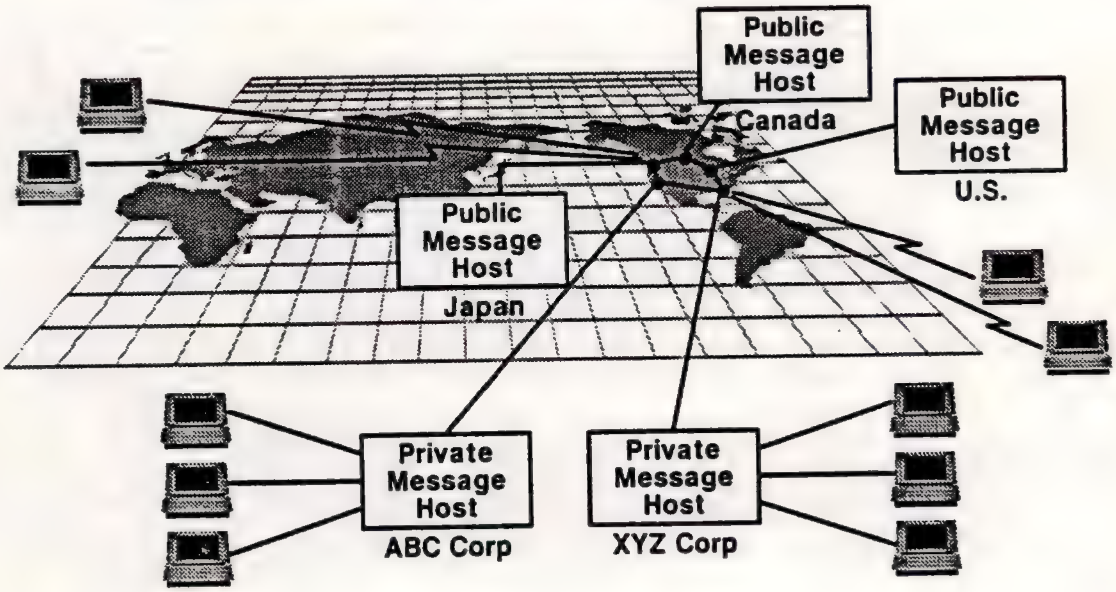


Public Message Host
Canada

Public Message Host
U.S.

Public Message Host
Japan

Global Messaging Network



Public Message Host
Canada

Public Message Host
U.S.

Public Message Host
Japan

Private Message Host
ABC Corp

Private Message Host
XYZ Corp

Telenet

Global Messaging Business

	Domestic	International
Intra-Company	• Electronic Mail • Hierarchical Addressing • Inform Script Applications • Corporate Pricing • PC Applications	• Global Packet Net Access
Inter-Company	• Electronic Data Interchange • Hardcopy • Single Mailbox Pricing • PC Applications • Gateways to Data Bases	• Electronic Data Interchange • Telex • X400 Interconnect • PC Applications • Gateways to Data Bases

Telenet

Telemail Plus

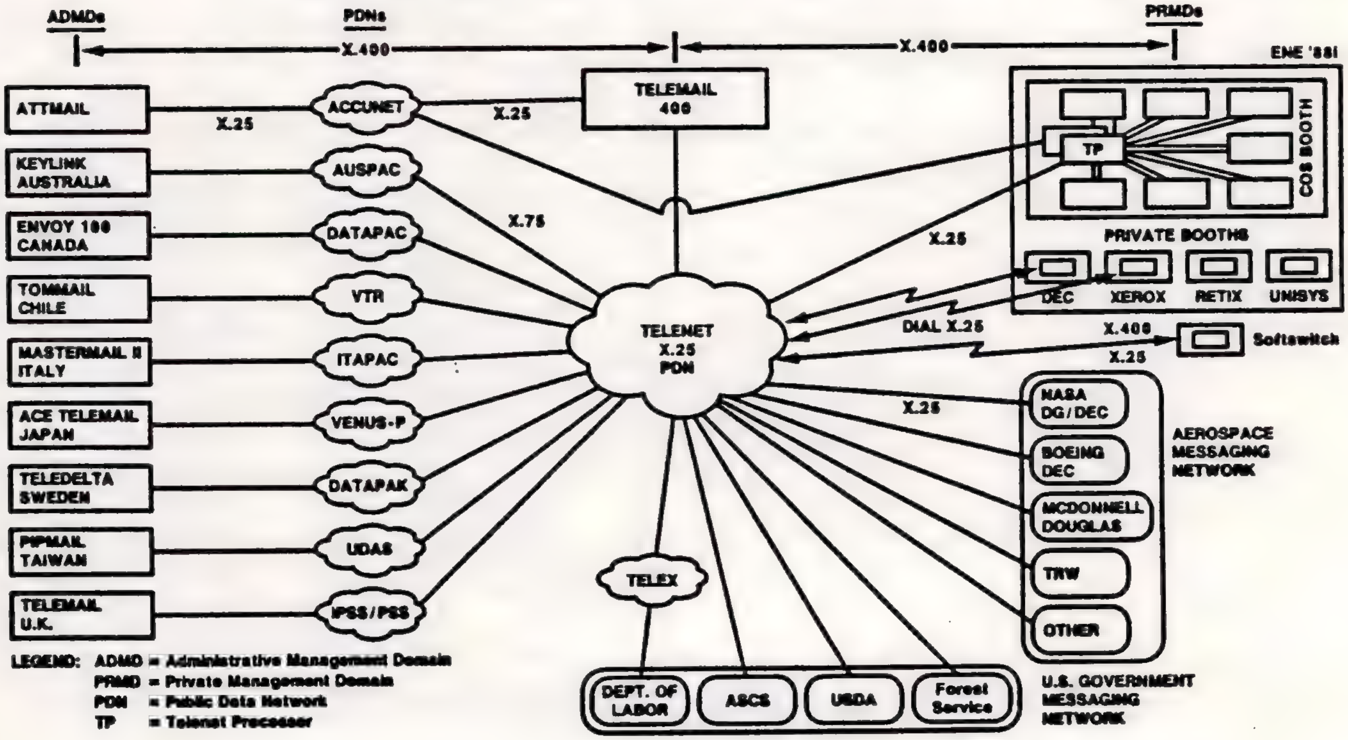
A Global Solution to Business Communications

Comprehensive Range of Services

- Telemail Telex
- Telemail Electronic Messaging
- Telemail Gateway
- Telemail Xpress
- PC Telemail
- Telemail 400
- Telemail Systems
- Telemail Teams

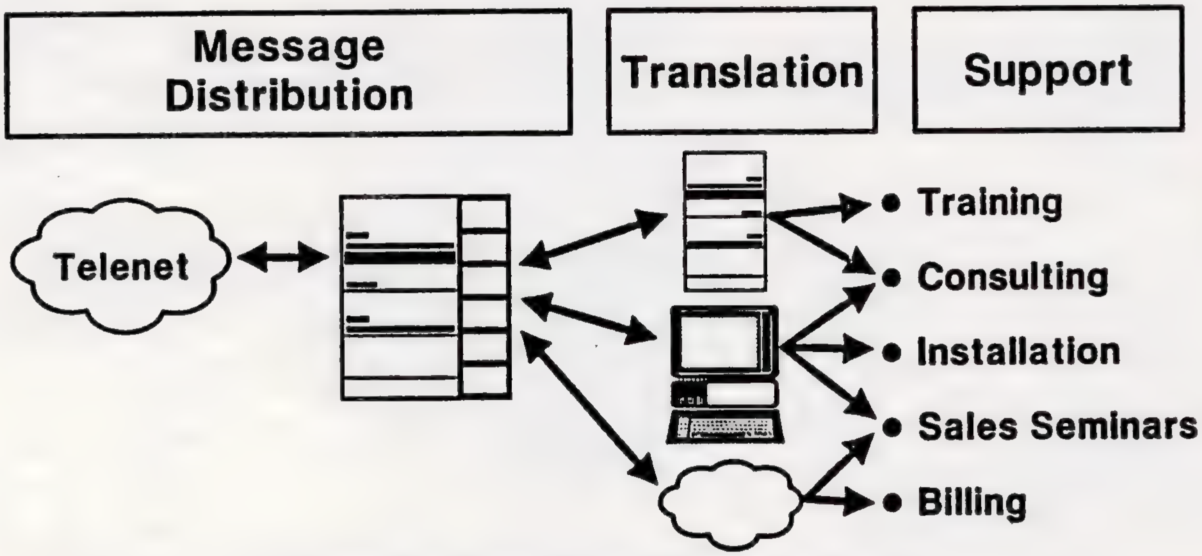
Telenet

TELENET ENE '88i CONFIGURATION



LEGEND:
ADMD = Administrative Management Domain
PRMD = Private Management Domain
PDN = Public Data Network
TP = Telenet Processor

TEDI Service Components:



Message Distribution

Translation

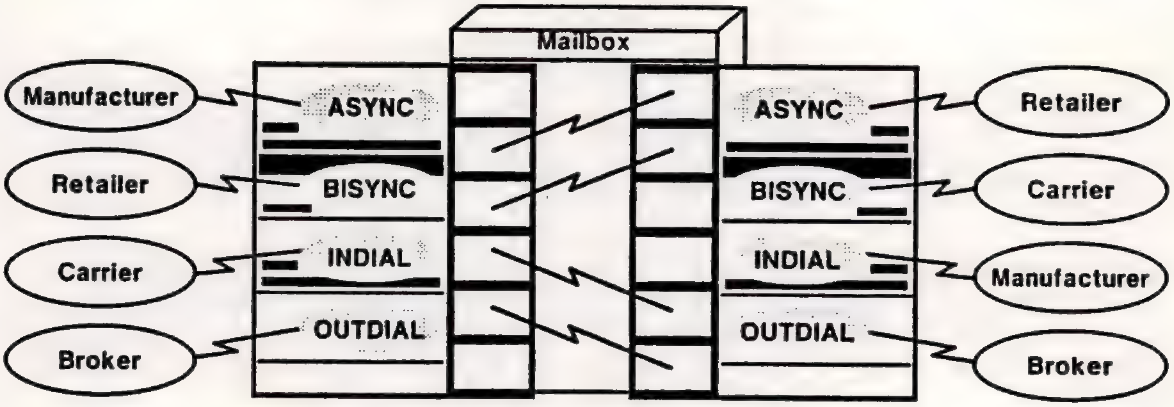
Support

Telenet

- Training
- Consulting
- Installation
- Sales Seminars
- Billing

Total Solution for EDI Needs

Message Distributor

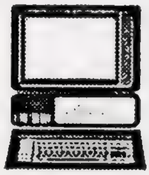


- Mailboxing
- Validation & Audit
- Backup, Recovery, Billing

EDI Translator Options

Mainframe Translator

- ANSI X12
- TDCC
- UCS



PC Translator

(• ANSI X12 • TDCC • UCS) * (• Standalone • F/E or B/E)

Network Translator

- ANSI X12
- TDCC
- UCS

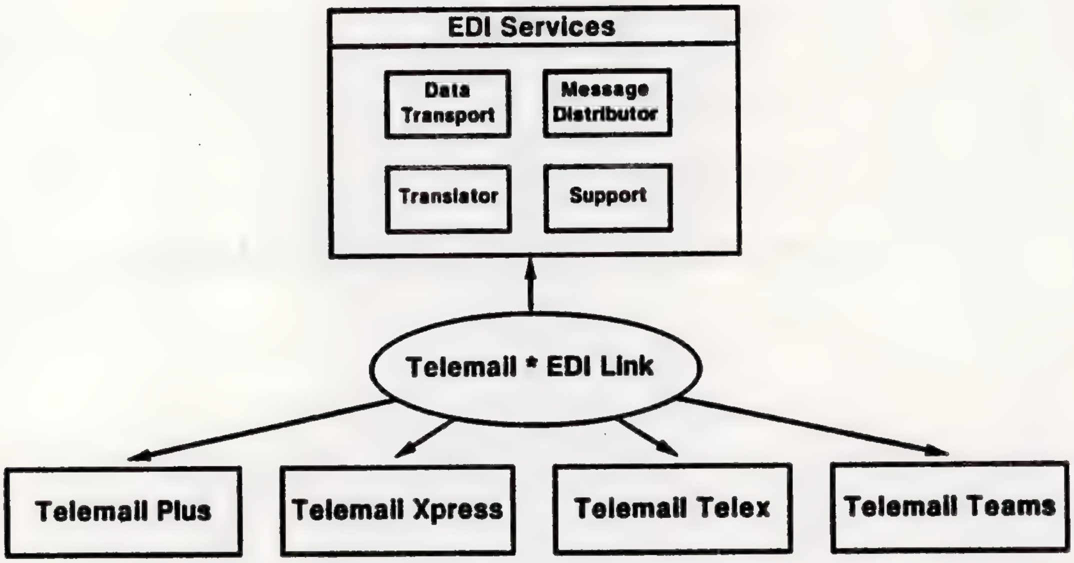
Conversion of Non-Standard Format to/from Standard Format

Telenet

EDI Support:

- Training
- Consulting
- Installation
- Hub and Spoke Marketing Programs
- Ongoing
- Billing

Telenet Messaging Services



EDI Services

Data Transport

Message Distributor

Translator

Support

Telemail * EDI Link

Telemail Plus

Telemail Xpress

Telemail Telex

Telemail Teams

Access to Other Messaging Products

Telenet's Advantage

- Experienced Systems Integrator
  - Communications, Messaging, and EDI
  - Messaging
  - Local A/E, A/C, and S/E Support

- Single Source Service Provider
  - Communications -- Public, Private, U.S., International
  - Global Messaging -- Mail, Telex, Hardcopy, X400, ...
  - EDI

- Full EDI Service Provider with Commitment to Quality
  - Telenet's Global PDN, Systems and Messaging Capability
  - Sterling Software/Ordernet Message Distribution, and Network Translation (EDI Host) Capability
  - Transettlements Mainframe Translation Capability
  - EDI, Inc.'s PC Translation Capability

- U.S. and International Presence
  - Multiple Joint Ventures Internationally

Michael H. Mansouri
Director, Telenet EDI Services
TELENET COMMUNICATIONS CORPORATION

Michael Mansouri, director of EDI Services, has been with Telenet Communication Corporation since 1985. Mr. Mansouri has over 12 years of diverse experience in applying data communications technology for government and private industry. Michael Mansouri is responsible for business strategy and execution of Telenet's EDI Services. Prior to Telenet, he held several senior management positions within Tymshare's Applied Communications Services organization and McDonnell Douglas' EDI Systems company.

Mr. Mansouri holds a BS degree in Computer Science and Statistics (joint major) from Utah State University and a MS in Operations Research from George Washington University.

LATE TO THE PARTY OR JUST IN TIME?

Beth Sibbring

CompuServe

What Is EDI?

FIRST DEFINITION SLIDE

The definition of EDI follows directly from a look at the 3 words that make up the acronym, EDI. I think it lends itself to starting from the bottom and moving up, so let's begin with the word "Interchange."

> INTERCHANGE within the context of EDI means "between two companies, organizations, or any two business partners." It refers to any communications that have to pass between Company A and Company B for business purposes.
>
> DATA is actually an over-simplification of sorts, because the information that is communicated between the two companies in an EDI application represents data that would otherwise be included on a paper business document, such as a purchase order or an invoice. In fact, some people prefer to use the acronym EBDI, for Electronic Business Data Interchange, as a more accurate acronym.
>
> Finally, ELECTRONIC means that the method of communicating this order-related data from Company A to Company B is computerized, using telecommunication services.

EDI Definition

ELECTRONIC

Computer-based
Telecommunications

DATA

Business Documents

INTERCHANGE

Between Organizations

SECOND DEFINITION SLIDE

Pulling these explanations together we come up with a basic definition of: "The transfer of order-related business documents, between organizations, using computer-based communications. EDI is intended to replace paper-based methods and phone-based methods of communication."

EDI Definition

The transfer of order-related business documents between organizations, using computer-based communications.

Replacing:

Paper-based methods
Phone-based methods

STANDARDS SLIDE

Other than the fact that EDI necessarily involves communication between companies, and not within a given company, this definition applies to many forms of business electronic communications. However, there is one additional element of the definition of EDI that separates it from all other forms of electronic communication. That major distinguishing factor is standards. EDI, by definition, means that the documents or "transaction sets" being exchanged by the involved trading partners are standardized. The documents are generated according to strictly defined file formats, developed by either a cross-industry organization such as ANSI (American National Standards Institute), or an organization representing the needs of individual industries, such as TDCC (Transportation Data Coordinating Committee).

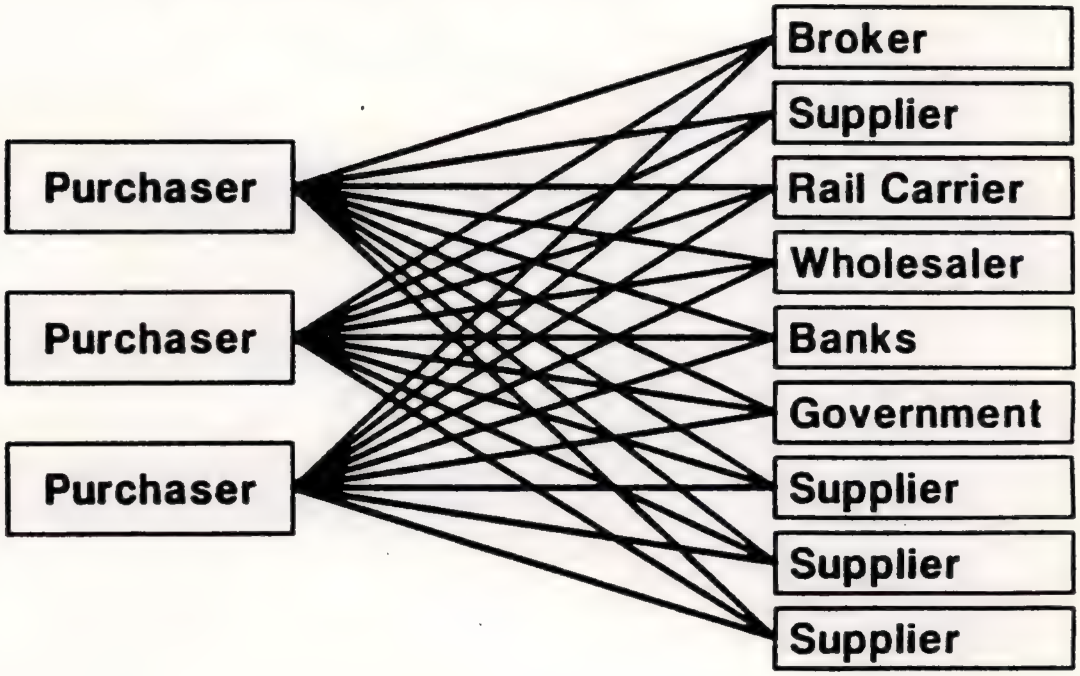
EDI Implies That a STANDARD Is Used to Precisely Define the Elements of the Electronic Message.

NUMEROUS PARTICIPANTS SLIDE

In order to understand the need for standards in inter-company communications applications, we need only take a quick look at this inter-company environment. First off, we are talking about an environment involving many different businesses, in different areas of trade, who buy and sell products and services from one another. This slide depicts 3 large purchasers, all dealing with an array of brokers, suppliers, carriers, wholesalers, banks and government agencies. Note that all these trading partners must deal with each of the 3 purchasers individually, having some portion of their business with each of the 3.

These various "trading partners" are in different lines of business, have different operating schedules, have their own internal procedures, and most likely have different computing and communicating capabilities. Yet for buying and selling purposes, they must be able to communicate with each other.

Numerous Participants



Purchaser
Purchaser
Purchaser

Broker
Supplier
Rail Carrier
Wholesaler
Banks
Government
Supplier
Supplier
Supplier

NUMEROUS DOCUMENT TYPES

So we have a great number of participants, with different capabilities. We also have a large number of documents that must pass between these many participants in order for them to "do business." Within the "purchase-to-payment cycle," it would not be uncommon for over 20 documents to be exchanged by any two companies. This number grows exponentially when we refer back to all the overlapping relationships between the many participants in a given industry.

Numerous Document Types

Orders

Order Acknowledgment

Bill of Lading

Shipping Notice

Forecast

Billing Advice

Invoice

Price Change

Etc.

Etc.

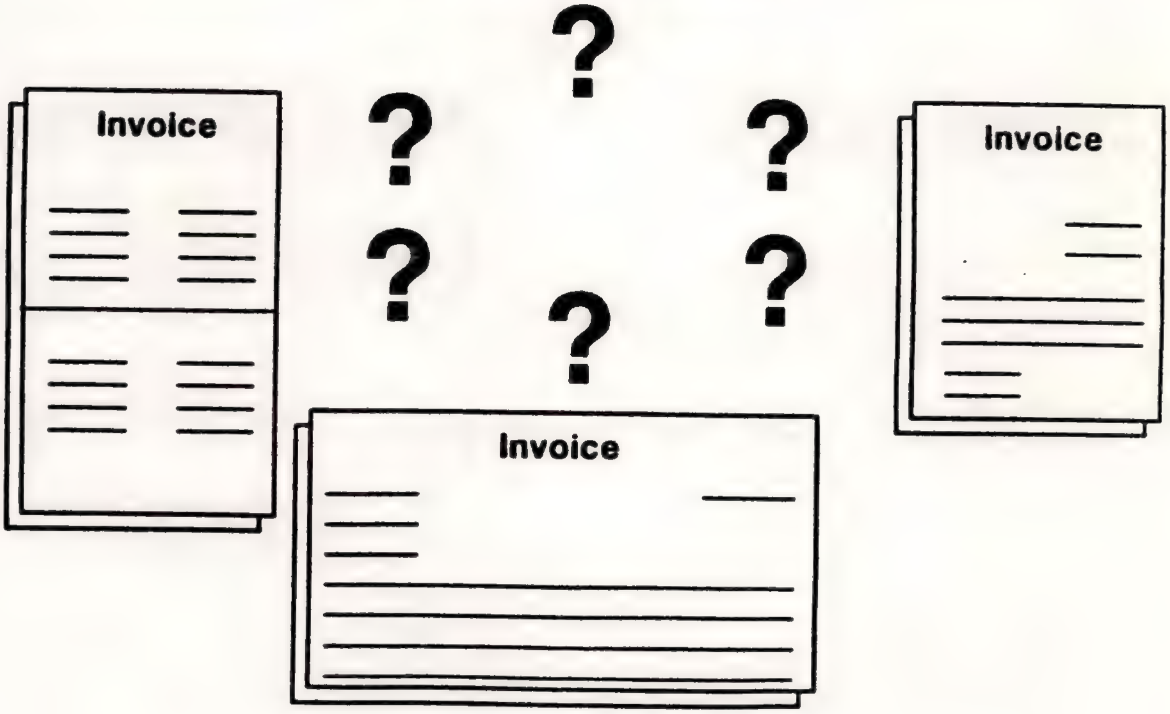
Order Adjustment

Etc.

NUMEROUS DOCUMENT FORMATS

Now when we consider the number of participants, plus the number of different documents, compounded by the existence of many different document formats, we can see a logical reason for standardized document formats. In order for Company A and Company B to exchange documents electronically, both companies must have the ability to receive incoming documents from the other - and most importantly - be able to use the date provided in that electronically transmitted document. But if Company A creates documents in its own proprietary file or document format, and Company B does not support this same format on its host computer, Company B is forced to either receive the document and rekey it into their own computer to make the data useful, or recode their internal processes in order to make sense of the incoming document from Company A. While receiving electronically and rekeying does reduce mail delays and lead times, it does not take advantage of the receiving company's computing capabilities to their fullest advantage. and the recoding option quickly becomes unrealistically costly, when we consider all the many companies that Company B must be doing business.

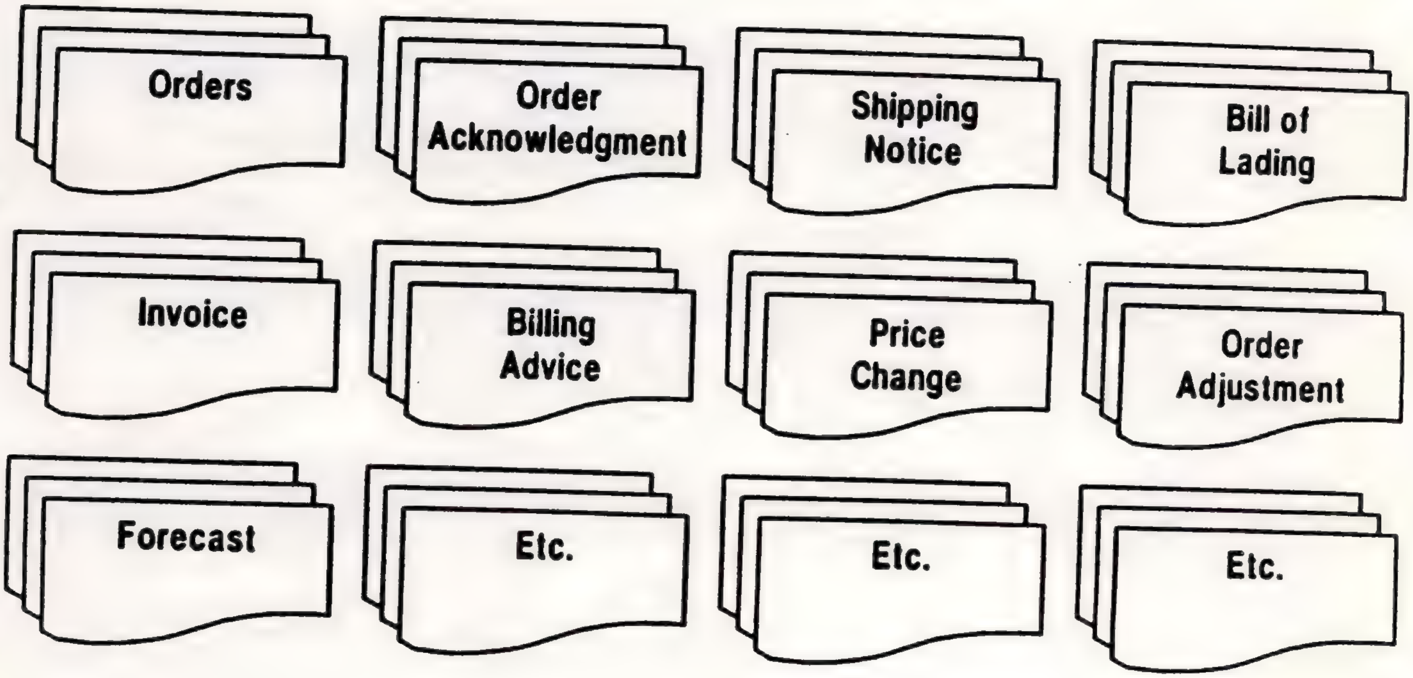
Various Document Formats



EDI WILL ONLY PROCESS...SLIDE

So, by definition, Electronic Data Interchange is the intercompany exchange of STANDARDIZED business documents, electronically. And standards organizations such as ANSI and TDCC have worked for years to develop both the "data dictionary" and business documents built using this dictionary, to accomodate the needs of buying and selling goods and services.

EDI Will Only Process Documents Within Supported Standards



Orders

Order Acknowledgment

Shipping Notice

Bill of Lading

Invoice

Billing Advice

Price Change

Order Adjustment

Forecast

Etc.

Etc.

Etc.

BENEFITS SLIDE

The benefits of EDI, however, do not vary radically from application to application. Most EDI applications, however unique, are driven by a need to reduce paper and/or phone communications. The trading partners want to move to electronic communications because they want the timeliness of phone communications and the low cost of mail, with increased accuracy over both. EDI can meet these needs by providing the following benefits:

Reduced data entry (and re-entry costs)

Lower error rates (and also reduced error correction costs)

Faster document processing (and shorter "purchase-to-payment" cycle)

And at each stage of the product business cycle, from purchase to payment, if document delivery is faster, without errors and usable by other internal systems, then the document receiver benefits in:

Manufacturing Planning (knowing exact instead of forecasted orders)

Distribution (maintaining tight, accurate shipping schedules)

Funds Flow (achieving quicker funds flow and better cash management)

The overall benefit is the reduction in "information float," via immediate information delivery.

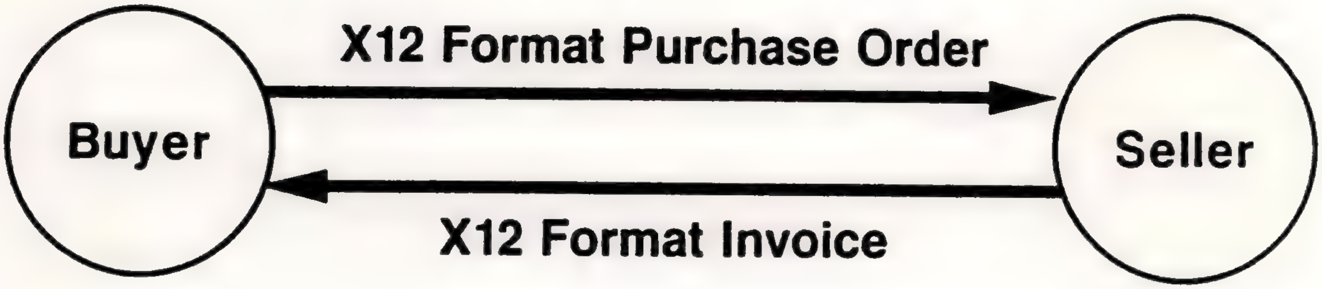
EDI Benefits

- Reduced Data Entry Costs
- Lower Error Rates
- Faster Document Processing
- Improved Business Planning
  - Manufacturing
  - Distribution
  - Funds Flow
- Reduced "Information Float"

POINT-TO-POINT IMPLEMENTATION

Two companies can implement an EDI application by establishing a direct, or point-to-point electronic link. This could be accomplished via dial-in or dial-out capabilities or via a leased line between the two parties. And such an application, between two parties supporting the same EDI document standard, using compatible hardware, supporting identical communications protocols and line speeds, and operating within the same time frames, is possible. But - even assuming the support of the same EDI document standard - point-to-point applications between a number of trading partners quickly become limited and inefficient, for a number of reasons.

X12 Implementation

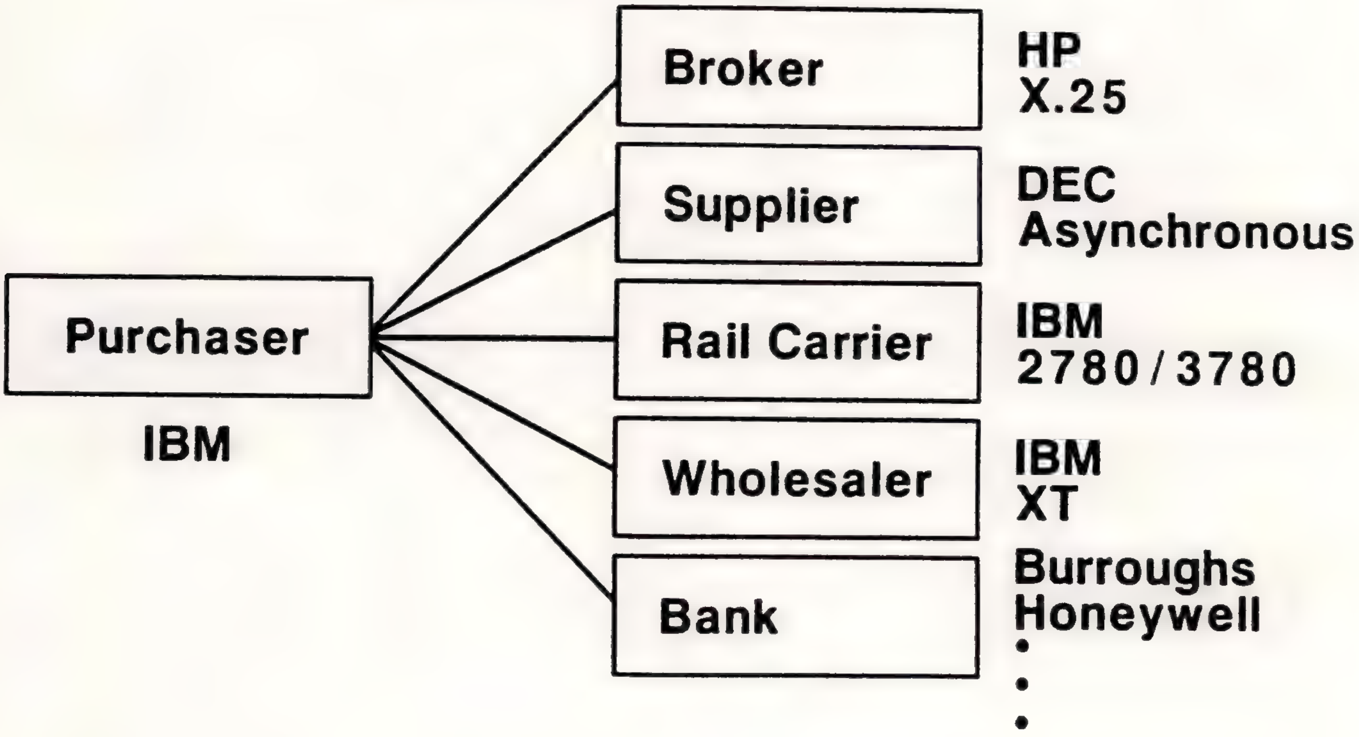


Direct Data Transmission

HARDWARE AND PROTOCOLS

While hardware and communications compatibility may exist between two trading partners, the likelihood of such uniformity existing throughout the enitre community of trading partners is extremely remote. Point-to-point EDI transmissions quickly become cost-ineffective, if at all possible, when we consider the varying hardware devices, protocols and line speeds in use by different companies.

Incompatible Equipment and Protocols


Purchaser
IBM

Broker
HP
X.25

Supplier
DEC
Asynchronous

Rail Carrier
IBM
2780/3780

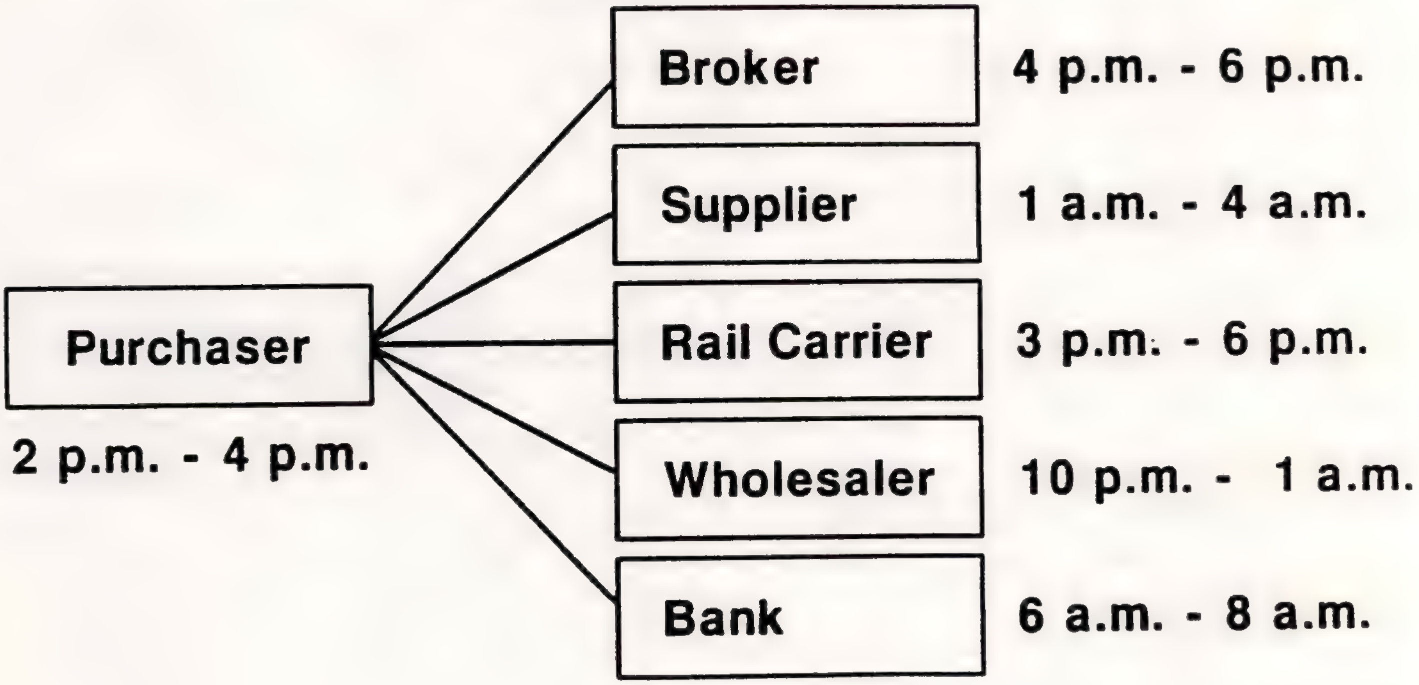
Wholesaler
IBM
XT

Bank
Burroughs
Honeywell
•
•
•

OPERATING SCHEDULES

While not the barrier that hardware and communications capabilities might be, varying operating schedules and different time zones between companies desiring to communicate with one another can constrain the timely flow of communications between trading partners. In a point-to-point EDI application a company might be faced with initiating many separate transmissions at many different times of the day and night to reach EDI trading partners.

Incompatible Operation Schedules



Purchaser 2 p.m. - 4 p.m.

Broker 4 p.m. - 6 p.m.

Supplier 1 a.m. - 4 a.m.

Rail Carrier 3 p.m. - 6 p.m.

Wholesaler 10 p.m. - 1 a.m.

Bank 6 a.m. - 8 a.m.

EDI LIMITATIONS

So while an EDI application can provide significant operational benefits, there are a number of just as significant limitations to implementing EDI with point-to-point communications.

HARDWARE/PROTOCOLS/LINE SPEEDS - As we've seen depicted on the previous two slides, varying computer hardware, communications protocols and line speeds create barriers to direct EDI applications involving more than one or two trading partners.

OPERATING SCHEDULES - Again, time zones and differing operating schedules can extend the window for EDI transmissions from minutes to around the clock.

STANDARDS - To this point we've been making the assumption that all involved trading partners can support the same EDI document standard. Yet in reality, companies may choose to use differing EDI standards, different versions of the same standard - or no standard at all. The adoption of incompatible EDI document standards often occurs from one company to another in the same general industry, and even more frequently between companies that trade with each other but are not within the same vertical industry.

INTER-APPLICATION ISOLATION - Referring back to the product business cycle from "purchase-to-payment," I want to make clear that in a straight forward EDI application, EACH document involved in the purchase-to-payment cycle, from the Purchase Order to Invoice to Notification of Remittance to a Bill-of Lading, is a SEPARATE EDI application. Any interconnection between the separate documents is up to you.

NON-INTERACTIVE - Though communications within an EDI application are occurring simultaneously, the communications are not in immediate response to one another. For example, after you've finished sending purchase orders to a trading partner, you may either drop the connection or turn the line around to receive documents. But even when the line is turned around, the information received is not in response to the information sent. Surely your organization could benefit from truly interactive communications with your trading partners, to effectively complete some portion of your communications needs.

COMPETITIVELY NEUTRAL - The last, and I feel most significant limitation of an EDI application, involves its effect or lack of effect on your organization's market positioning. EDI is intended to provide operational logistical benefits. EDI in some cases can enhance your market image and provide some degree of a competitive edge, but in most cases - in which other competing organizations are also implementing EDI, the benefits are realized by all, and all share in the increased efficiencies. In fact, unless you are the only organization within your industry doing EDI, EDI may be thought of as being competitively neutral, because there is no distinct competitive or marketing benefit to implementing EDI.

EDI Limitations

- Hardware
- Protocols / Line Speeds
- Operating Schedules
- Standards
- Application Isolation
- Non-Interactive
- Competitively Neutral

FIRST CLEARINGHOUSE SLIDE

Is there a way to overcome the limitations of straightforward EDI? Yes. A company intending to implement EDI can eliminate several of limitations and incompatibilites introduced by EDI, by using the services of an EDI "clearinghouse" or EDI "network."

EDI clearinghouses (such as GEISCO, McDD, ORDERNET) offer network and mailbox services that can supersede such incompatibilities as different line speeds, protocols, document standards, and time zones. Clearinghouses can allow for one single EDI transmission from your organization - into the clearinghouse - where the transaction sets destined for different trading partners will be identified, split apart and mailboxed for the specific intended recipients. EDI clearinghouses offer flexibility, reliability and security not achievable with point-to-point EDI applications.

But the dilemmas for which a typical EDI clearinghouse can offer NO solution are the last 3 noted on our limitations slide....

EDI Clearinghouse Functions

* Network Services

Multiple Protocols

Multiple Line Speeds

Device Independence

7-day, 24-hour Availability

EDI Clearinghouse Functions

* Mailbox Capabilities

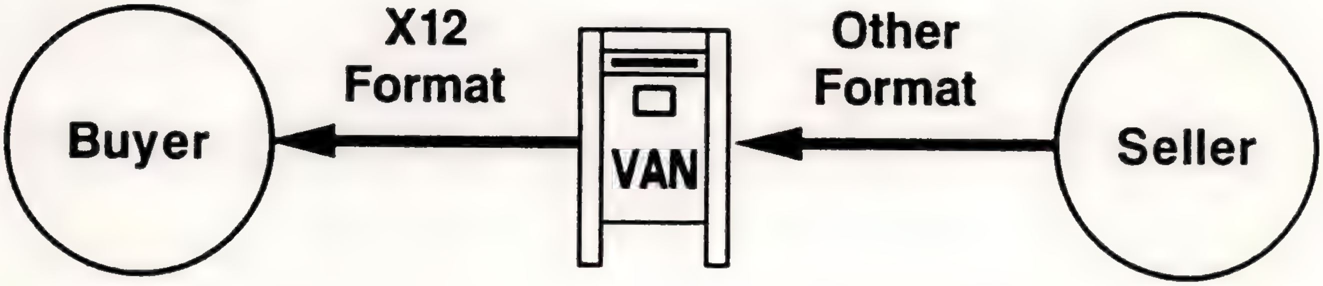
Single Transmissions

Format Translations

Editing and Error Checking

Reporting

X12 Implementation



Mailbox Service
With Reformatting

LIMITATIONS SLIDE 2

Neither point-to-point EDI nor EDI via a clearinghouse provide for the interconnection of the individual document applications. You organization is still faced with the challenge of relating the data contained within each document to: 1) one another (individuals); 2) other internal applications; and 3) other external applications (i.e., back out to your trading partners).

EDI even with the use of a clearinghouse is still non-interactive. And there IS a need to offer some measure of query, some interactive capability to allow your trading partners to gain real-time value from the system.

Finally, we revisit the issue of competitive advantage. Strict EDI includes no functionality that will give you a competitive edge. There must be some means to gain that competitive advantage by using EDI as a stepping stone to other value-added applications.

Our clients want to take that 2nd step - beyond EDI, beyond the operational improvements - to achieve strategic marketing improvements. And, importantly, our clients want to be the first in their industries to take this second step.

EDI Limitations

- Hardware
- Protocols / Line Speeds
- Operating Schedules
- Standards
- Application Isolation
- Non-Interactive
- Competitively Neutral

FORTUNE SLIDE 1

I want to share with you a quote from a Fortune article entitled "How to Keep Customers Happy Captives." Although the quote specifically addresses a seller in a trading partner relationship, the core idea of the quote speaks to ALL organizations that need to leverage their trading partner relationships to achieve maximum return.

As a Fortune Magazine article entitled "How to Keep Customers Happy Captives" advises...

Equip them with computers they can use to keep their books, get advice, and buy what you sell. But hurry - if a competitor gets there before you do, he'll block you out.

MENU SLIDE

So what would such an integrated communications system include? I've conceptually represented and "EDI and more" solution on a simple PC menu. But this simple menu represents a comprehensive, integrated system allowing for all needed inter-company communications.

1) EDI - This first menu choice could lead to a submenu that provides all needed EDI functionality.

2) ORDER STATUS - Perhaps this choice could provide for a direct link into your host computer, allowing trading partners to determine the precise status of their orders.

3) PRODUCT INFO - Again, Videotex is the perfect means by which to deliver textual information. In this case, the product info may reside in a database on our host or on your host - the location is transparent to your trading partner.

4) PRICE CHANGES - Maybe the ideal means by which to convey your company's price changes is via a bulletin board. Selecting this menu choice would provide trading partners with up-to-date pricing at any time.

5) WHAT'S NEW - This portion of the total system may provide company/competitor/industry trend info. This info can come from you or a 3rd party, yet still be integrated into one comprehensive inter-company communications system.

6) TRAVEL SERVICES - Maybe a clipping service (ENS) would be more desired/needed by your trading partners, but what this menu choice represents is your ability to seamlessly integrate such remote, value-added services within the context of your private communications system.

7) MAIL - Lastly, access to electronic mail allows for the frequent and unstructured communications between your company and your trading partners.

So what organizations have implemented such comprehensive "total solution" systems? Let's take a look at a few "value-added" applications:

EDI....And More

- Electronic Mail
- Electronic Forms
- Electronic Publishing
- Electronic Conferencing
- Electronic Database Access

EDI...AND MORE

CompuServe believes that there are more benefits to be gained from establishing electronic inter-company communications than can be derived from strictly defined EDI capabilities. We promote a strategic and far-reaching approach to the implementation of electronic inter-company communications, with the goal of not only realizing operational effeciencies, but also achieving significant marketing benefits.

CompuServe recognizes that not all inter-company communication needs can be accomodated by a strictly formatted business document, nor can all needs be met with computer-to-computer communications. To this end, we offer the ability to strategically and seamlessly integrate EDI with communication tools such as electronic mail, electronic forms, electronic publishing, electronic conferencing and access to remote databases - resulting in a unique and comprehensive comunications system - a total solution.

Inter-company Communications

Sample Menu

```
1.  EDI
2.  Order Status
3.  Product Information
4.  Price Changes
5.  What's New
6.  OAG
7.  Electronic Mail

Enter Choice!
```

VALUE-ADDED APPLICATION SLIDE 2

This example client is neither a buyer nor a seller. Rather, this client has established itself as the purchasing clearinghouse within its industry. This client originally came to CompuServe, stating a need for strict EDI capabilities. But it was quickly determined that a strict EDI system would fall far short of the ordering needs of this industry - the electronic components industry. What this client needed, then, was a "trading system," as I mentioned earlier, to allow for immediate, real-time buying and selling of product. This client's existence is predicated upon its ability to facilitate buying and selling of goods within the electronic components industry, and with CompuServe's integrated communications services, this client has successfully entrenched itself as the ordering clearinghouse of its industry.

Value Added Application

- Leading manufacturer of engineering thermoplastics

- Highly customized applications

- Videotex service for customers provides: product properties, design attributes, industry news and part cost analysis

FORTUNE SLIDE 2

The quote is as follows:

"Equip them with computers they can use to keep their books, get advice, and buy what you sell. But hurry - if a competitor gets there before you do, he'll block you out."

I think the message is: add value to your inter-company communications, bring all needed and valuable communication services together in one environment, and LOCK YOUR TRADING PARTNERS IN WITH VALUE.

So what do you need in order to achieve this critical second step? To add strategic marketing value to your inter-company communications? TO LINK COMMUNICATIONS STRATEGY WITH BUSINESS STRATEGY?

Value Added Application

- Electronic Components Industry Clearinghouse
- Electronic Commodity Market
- "For Sale" Bulletin Board and "Requirements" Bulletin Board
- Half Hour Updates

''EDI Plus'' Benefits

Reduced Cost

Improved Productivity

Improved Methods

Enhanced Image

Competitive Edge

BENEFITS SLIDE

Both of these clients - regardless of their position as buyer, seller or neither - have realized the benefits of a truly comprehensive intercompany communications solution. They have not only realized the reduced costs, increased productivity and improved operational benefits of EDI, but they have taken that second step - to realize improvements in marketing methods, enhance revenues and achieve a competitive advantage.

They saw the whole picture and they demanded the total solution.

In closing, I want to leave you with a quote from Megatrends....

Organizations that choose to
use information technology
strategically will be the
long term beneficiaries
of the information revolution.

Megatrends

QUOTE SLIDE

Organizations that choose to use information technology strategically will be the long term beneficiaries of the information revolution.

CompuServe

People

Hardware

Software

Network

Facilities

a company you can depend on!

Elizabeth J. Sibbring
Market Manager
Electronic Communications Products
COMPUSERVE

Beth Sibbring is a graduate of Duke University, having double-majored in economics and political science. Upon graduation, Beth accepted a sales position with The Procter & Gamble Company (Paper Products Division), and was responsible for the Kroger account in Louisville, Kentucky.

After two years, Ms. Sibbring transitioned from sales of consumer products to sales of electronic communications by accepting a position with the ORDERNET Services Division of Sterling Software. Beth held responsibility for sales of EDI network and software services in the automotive industry for ORDERNET Services.

Ms. Sibbring joined CompuServe in May of 1986 to handle marketing of EasyPlex, CompuServe's electronic mail service for its 430,000 individual subscribers. In November, 1986, Beth accepted her present position, assuming marketing responsibility for CompuServe's family of commercial electronic communication services, collectively known as Interchange, and then acquiring responsibility for the CompuServe EDI Service upon its inception.

LATE TO THE PARTY
OR JUST IN TIME?

Marty Weiss
Executive Product Line Manager
Western Union

KEY POINTS

1. Western Union Is Setting New Standards in Third-Party Network Performance.
2. We Have Superior Document Handling/Distribution Capabilities for Both E-Mail and EDI.
3. Our Architectural Platform Is State of the Art for the 1990s.
4. We Deliver the Best Price/Performance.

THE NEW WESTERN UNION CORPORATION...

The Experienced Source Setting New Standards of Performance
and Commitment for
Electronic Data Interchange

Building upon the Unrivaled
Success, Reliability, Versatility, Architecture of EASYLINK

The Market Leader in E-Mail

western union

WESTERN UNION LEADERSHIP

- Current Market Leader in Electronic Mail
  - 178,000 E-Mail Users
  - Handles 9 Million Messages a Month

- Customer Base Includes:
  - Fortune 500-2000
  - Small Businesses

- Corporate Identity Synonymous with Reliability

- 135 Years of Communication Experience

- Long-Term Corporate Commitment to EDI

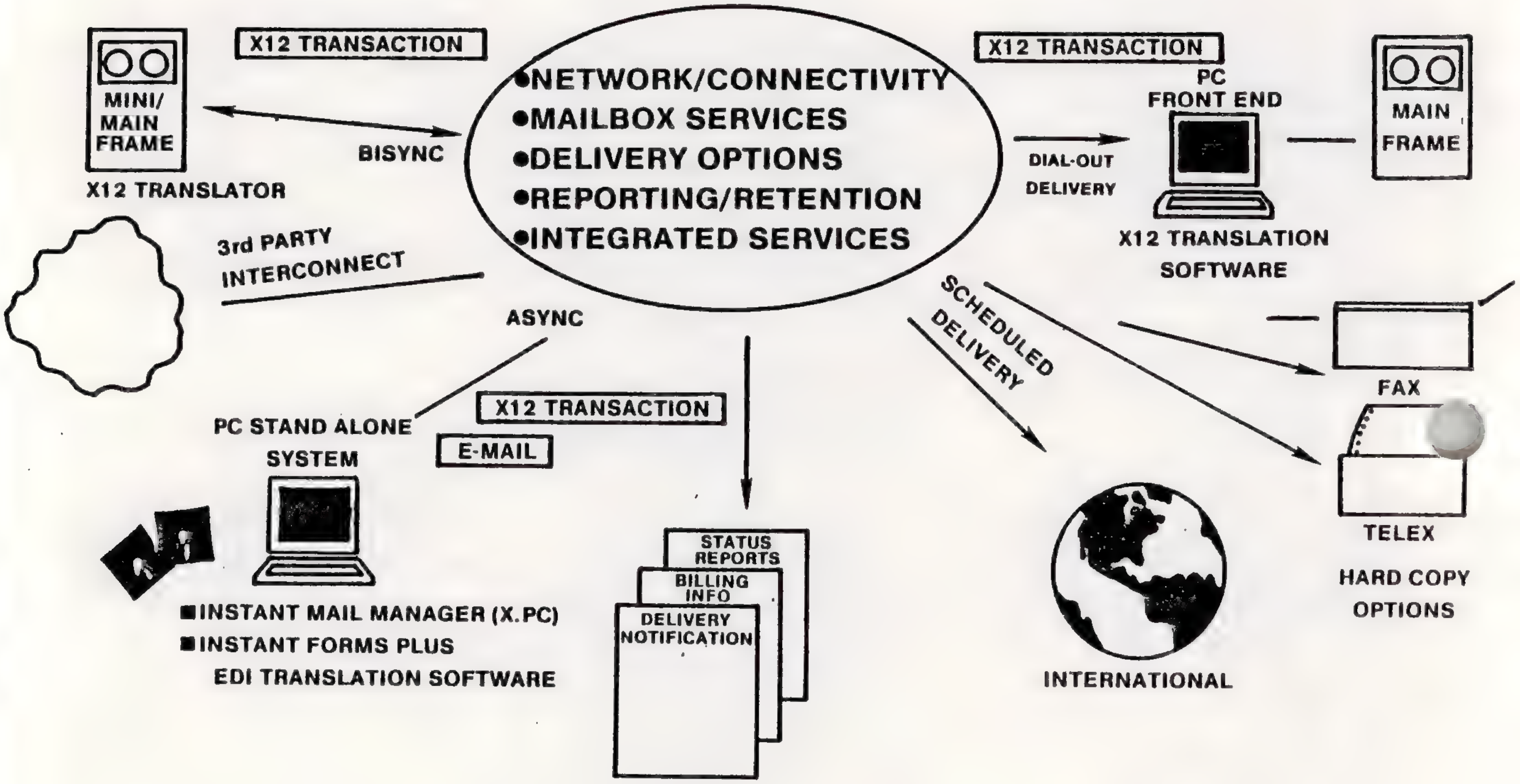
WHAT ARE THE SIMILARITIES BETWEEN EDI AND E-MAIL?

- EDI Is Another Interchangeable E-Mail Message Type.
- EDI Requires Many of the Same E-Mail Features and Services.
- E-Mail Messaging Is an Integral Part of the Order/Payment Cycle Information Flow.
- E-Mail and EDI Are Now Being Integrated by Hub Company and Users to Maximize Efficiency.

WESTERN UNION EDI SERVICES

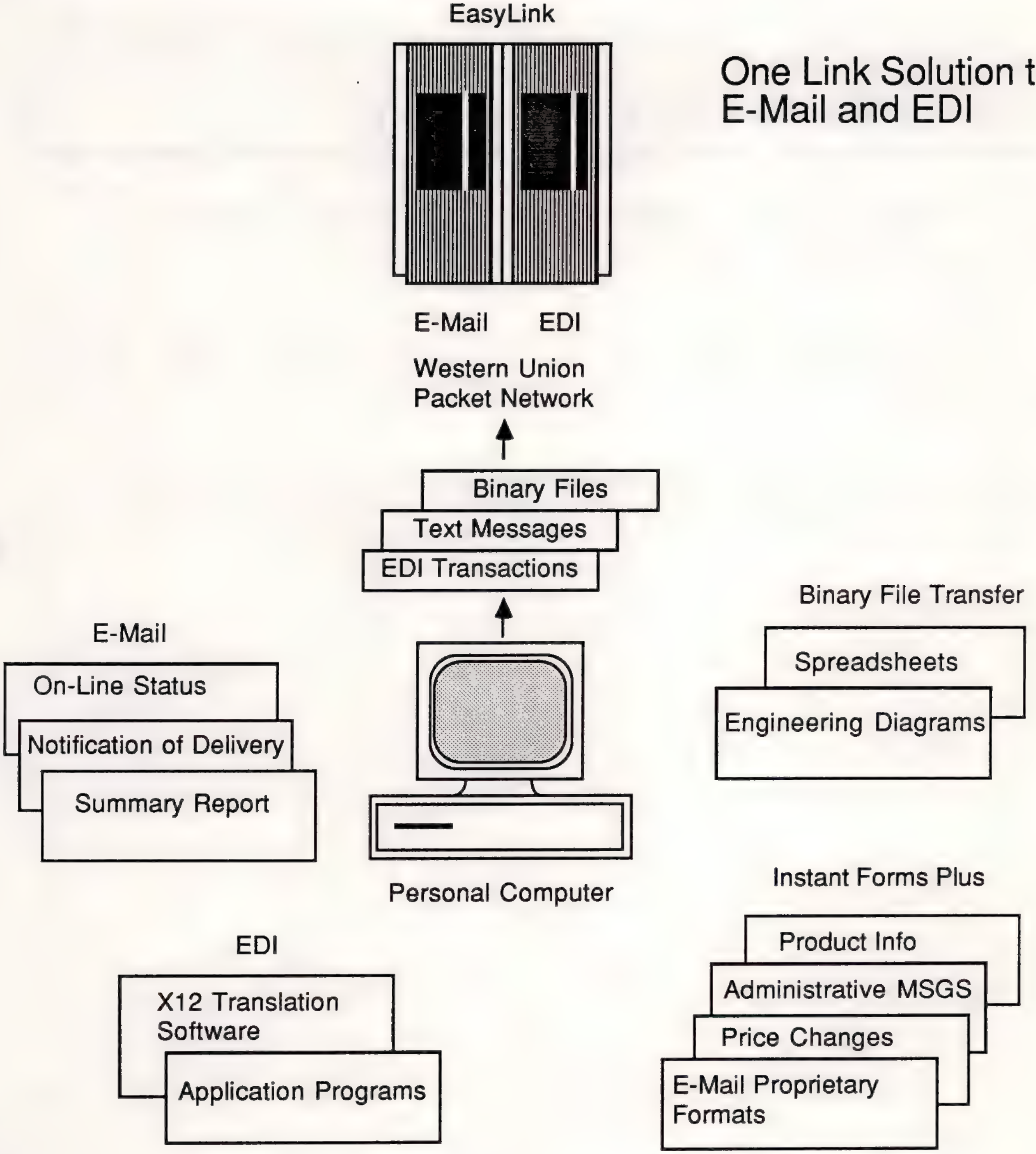
- EasyLink EDI Third-Party Network
- Software Verification Program
- Software Joint Marketing Agreements
- Consulting Services

WESTERN UNION EDI CAPABILITIES



EASYLINK EDI INTEGRATION

One Link Solution to E-Mail and EDI



EasyLink

E-Mail EDI

Western Union Packet Network

- Binary Files
- Text Messages
- EDI Transactions

Personal Computer

E-Mail
- On-Line Status
- Notification of Delivery
- Summary Report

Binary File Transfer
- Spreadsheets
- Engineering Diagrams

EDI
- X12 Translation Software
- Application Programs

Instant Forms Plus
- Product Info
- Administrative MSGS
- Price Changes
- E-Mail Proprietary Formats

EASYLINK EDI FOCUS ON DOCUMENT HANDLING/DISTRIBUTION

- Complementary to Premise-Based Document Processing Functionality
- Geared Toward High-Volume Users with Expanding, Ubiquitous Needs
- Leverages E-Mail Functionality that Is Well Suited to EDI Environment
- Facilitated by Tandem-Based Architecture

EASYLINK EDI PREEMINENT RELIABILITY

- 99.97% Availability = Continuous Service
- Tandem Nonstop Computers = Superior Switching
- 6 Years with Tandem = Experience + Foresight
- Completely Redundant Document Switching and Networking
- 135 Years Experience = Superior Business Communications

EASYLINK EDI

Speed of Delivery

- 95% of All Transactions Are Sent to Mailboxes within One Minute.
- 90% of All Documents Are Delivered within 20 Minutes (Dial-Out Delivery).
- Accommodates High Volumes without Impacting Speed and Efficiency.

EASYLINK EDI SUPERIOR RANGE OF FEATURE FUNCTIONALITY

- Delivery Options
  - Document Broadcast
  - Dial-out Delivery
  - Dial-out Polling
  - Scheduled Delivery

- Document Storage/Retention

- Delivery Notification

- Detailed Summary Reports

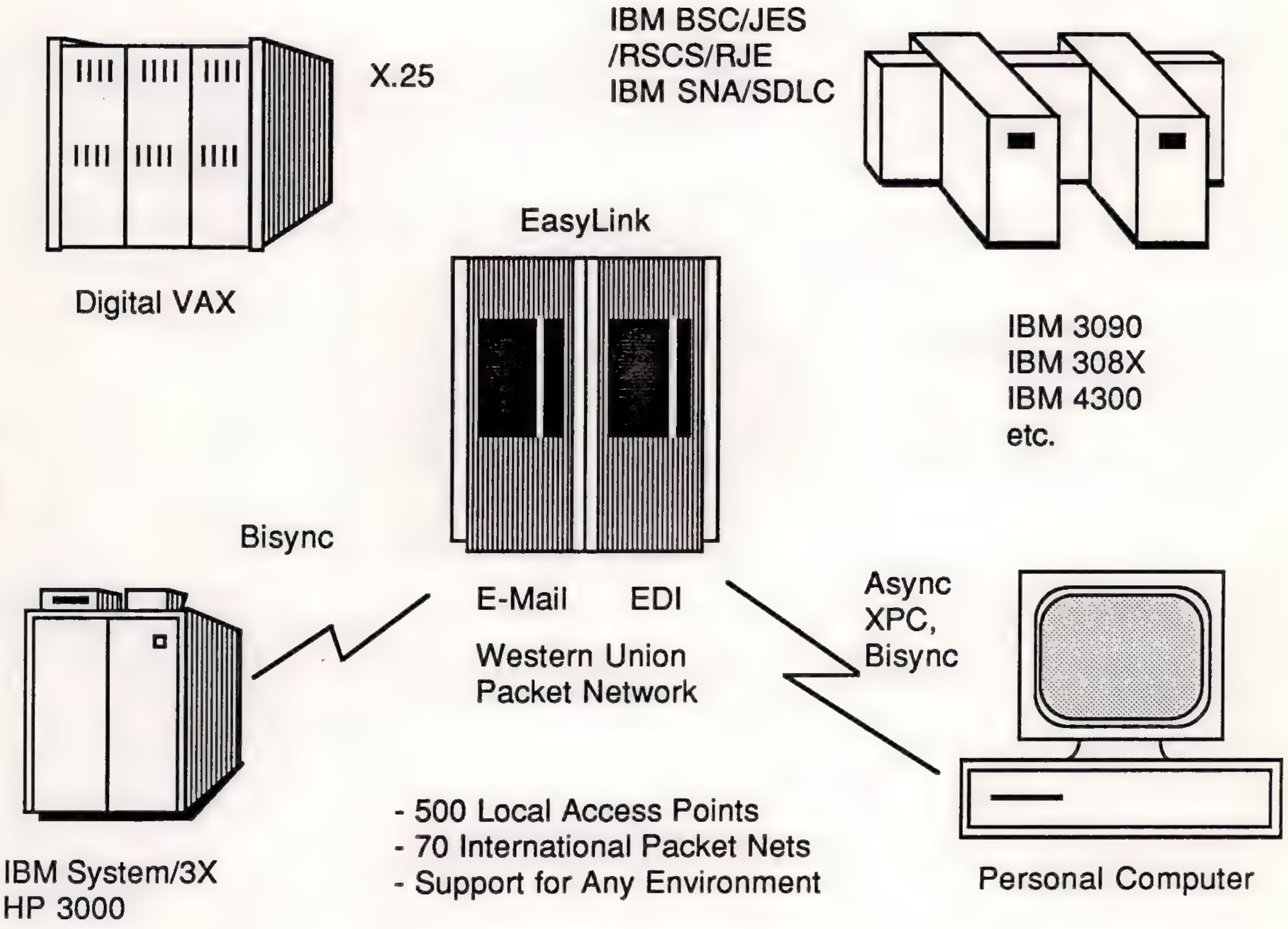
- On-Line Status

Open Networking Option
Third-Party Network Interconnect

EASYLINK EDI FLEXIBLE PUBLIC NETWORKING ORIENTATION

- Interconnect to Any Network
- Software Verification Program Supports 10+ Packages
- Closed Used Groups Are Optional, Not Mandatory
- Support for All Protocols and Systems
- Complementary Evolution to X.400
- Worldwide Customer Base

EASYLINK EDI CONNECTIVITY SUPPORT



- 500 Local Access Points
- 70 International Packet Nets
- Support for Any Environment

western union

EASYLINK EDI

Price/Performance

- Rapid Send/Receive at Standard Rates
- Low Monthly Minimums and Recurring Cost
- No Double Charging
- No Hidden Charges

ADVANTAGES OF WESTERN UNION ARCHITECTURE FOR EDI

- Seamless Integration with E-Mail
- Focus on Document Handling vs. Document Processing
- Preeminent Reliability
- Unparalleled Speed of Delivery
- Feature Functionality
- Public Networking Orientation
- Unsurpassed Connectivity
- Inherent Cost Advantage over Like Competitors

WESTERN UNION IS JUST IN TIME

Martin A. Weiss
Executive Product Line Manager
WESTERN UNION CORPORATION

As Executive Product Line Manager, Western Union EDI Services, Mr. Weiss directs all aspects of product planning and marketing for the Western Union family of EDI Services, including third-party network services, consulting ventures, and affiliations. Weiss has extensive experience marketing intercorporate communications services. Prior to joining Western Union, he was with AT&T for seven years in a variety of marketing positions. These include three years as Products Manager, Electronic Order Exchange, where Weiss developed and managed marketing strategies for selling proprietary systems in the intercorporate communications marketplace. Weiss holds an MBA from Ohio State University. He is the author of numerous professional papers addressing issues in intercorporate communications that have been published in magazines and periodicals, including the *Journal of Business Logistics*. Weiss is a member of the Council of Logistics Management.

LATE TO THE PARTY OR JUST IN TIME?

Don Holtz
Vice President, EDI Services
ADP

AGENDA

- DEFINITIONS
- FORCES
- WHERE EDI IS TODAY
- THE "IDEAL" SYSTEM

EDI - ELECTRONIC DATA INTERCHANGE

THE COMPUTER TO COMPUTER

EXCHANGE OF BUSINESS INFORMATION

IN A STANDARD FORMAT

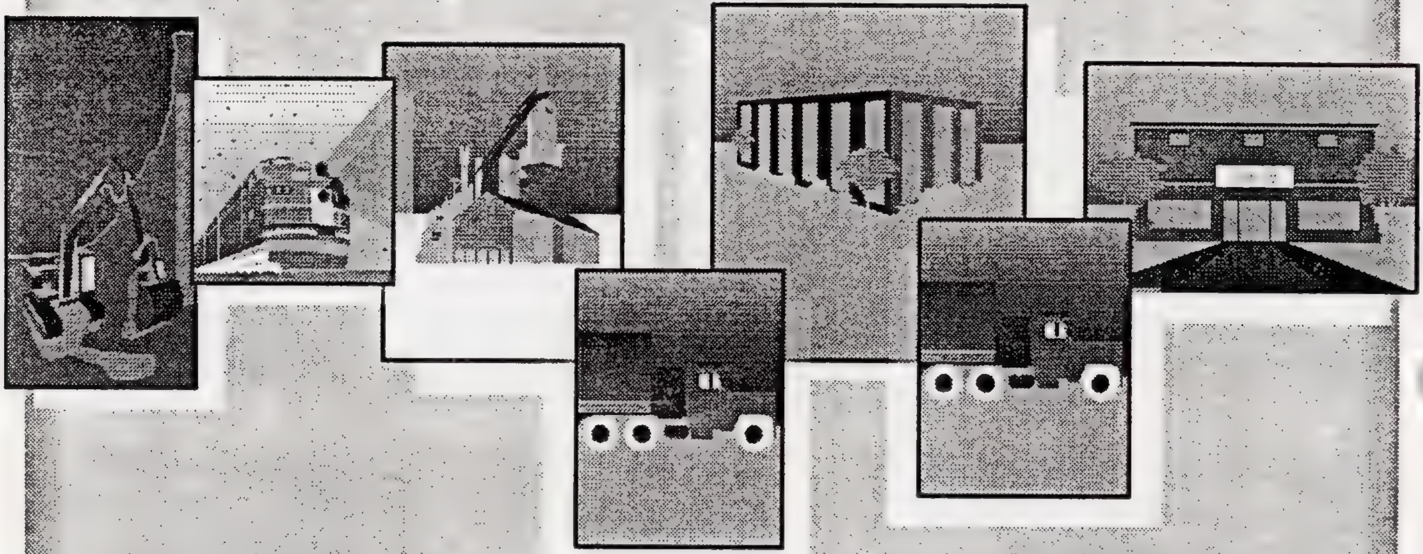
EDI Documents

- P.O. Acknowledgements
- Shipping Advisory
- Invoices
- Payments

THE "IDEAL" ELECTRONIC DATA INTERCHANGE SYSTEM FOR THE ELECTRONICS INDUSTRY

DEFINITIONS

CHANNEL PARTNERS

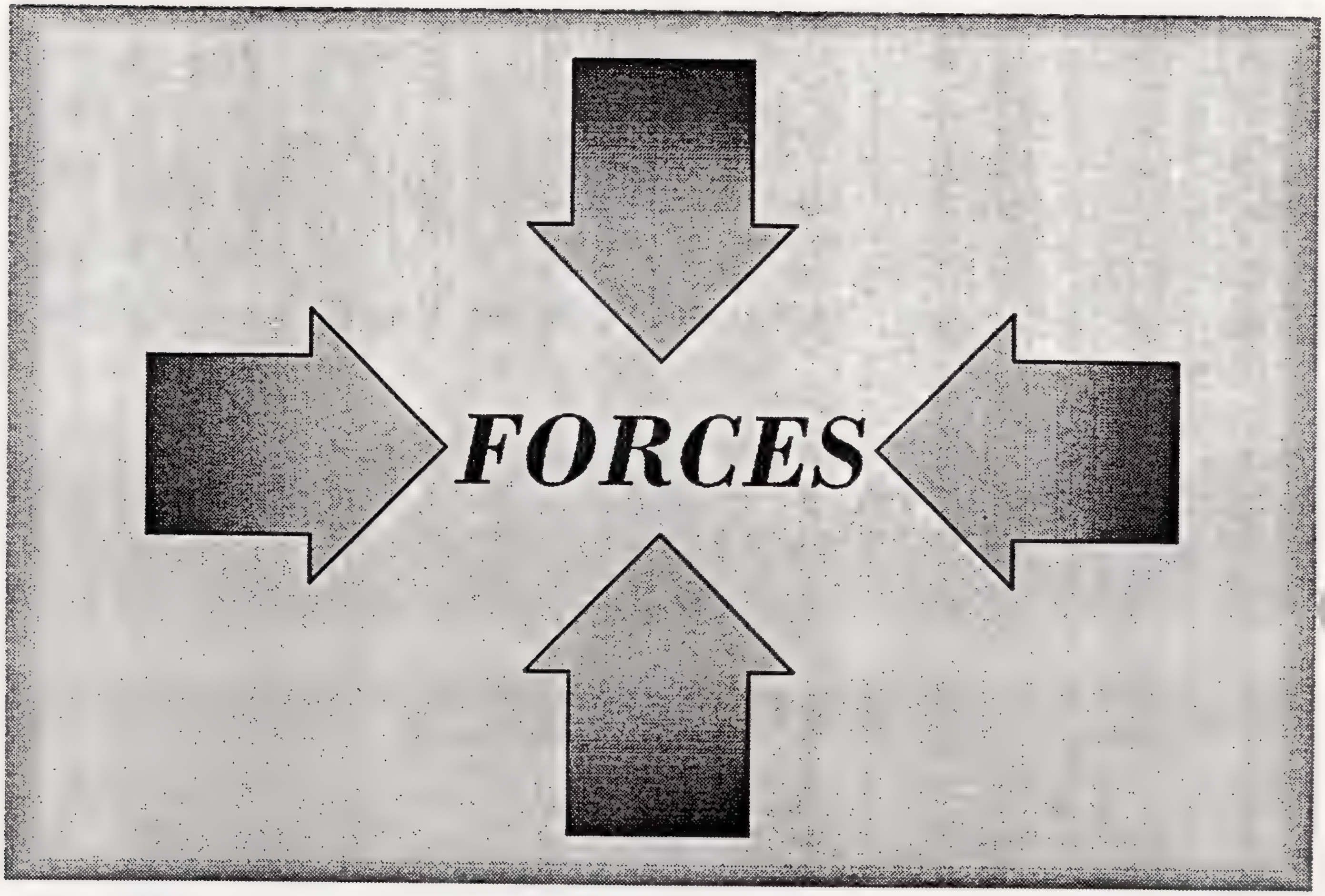


LINKING SYSTEMS
CHANNEL SYSTEMS
INTERORGANIZATIONAL SYSTEMS

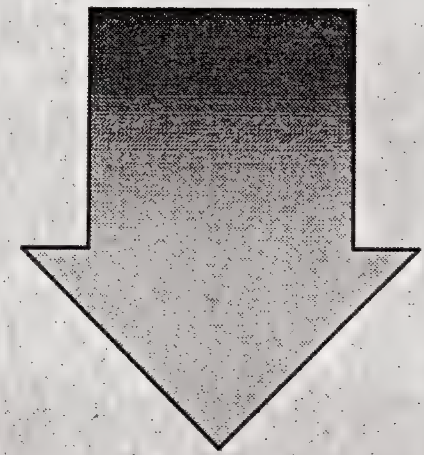
INFORMATION SYSTEMS THAT

INCLUDE INDEPENDENT ORGANIZATIONS

IN THE USER COMMUNITY



FORCES

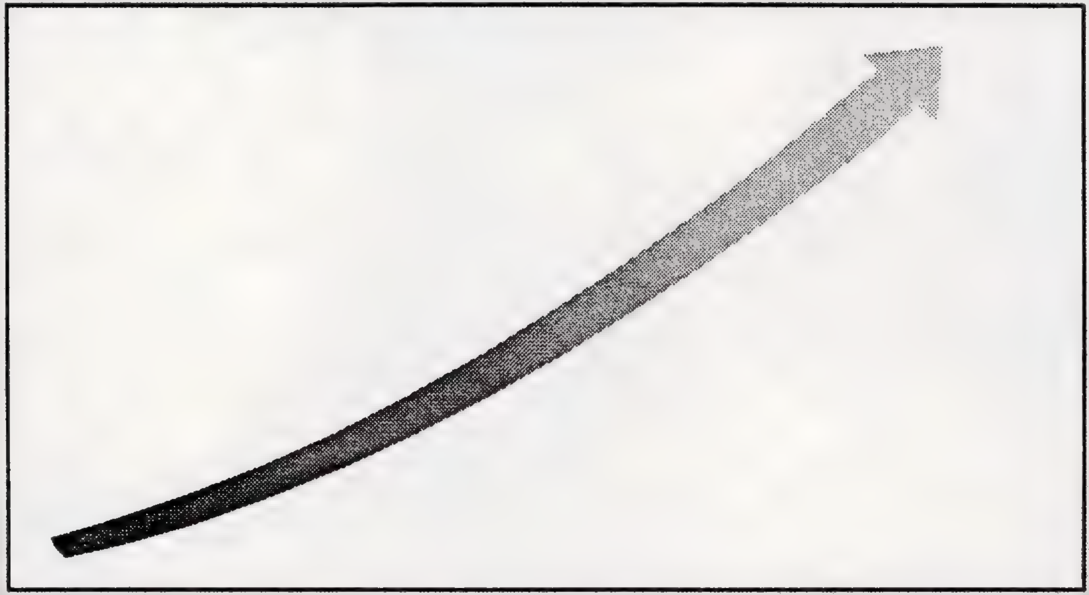


THE ERA OF THE CUSTOMER

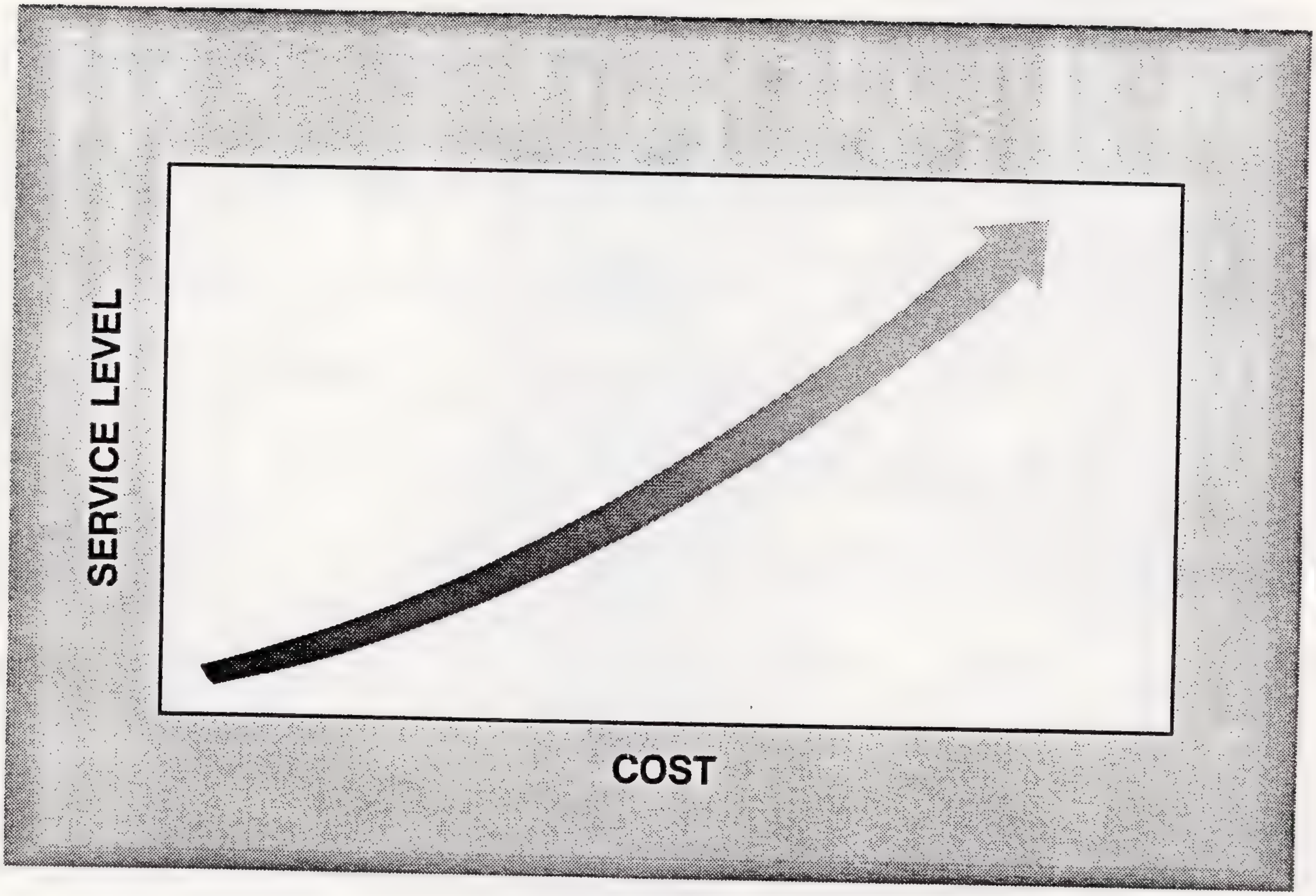
- STAY CLOSE TO THE CUSTOMER
- NO SUCH THING AS AN AVERAGE CUSTOMER
- THE COMPANY THAT EXACTLY MEETS THE CUSTOMERS NEEDS WINS

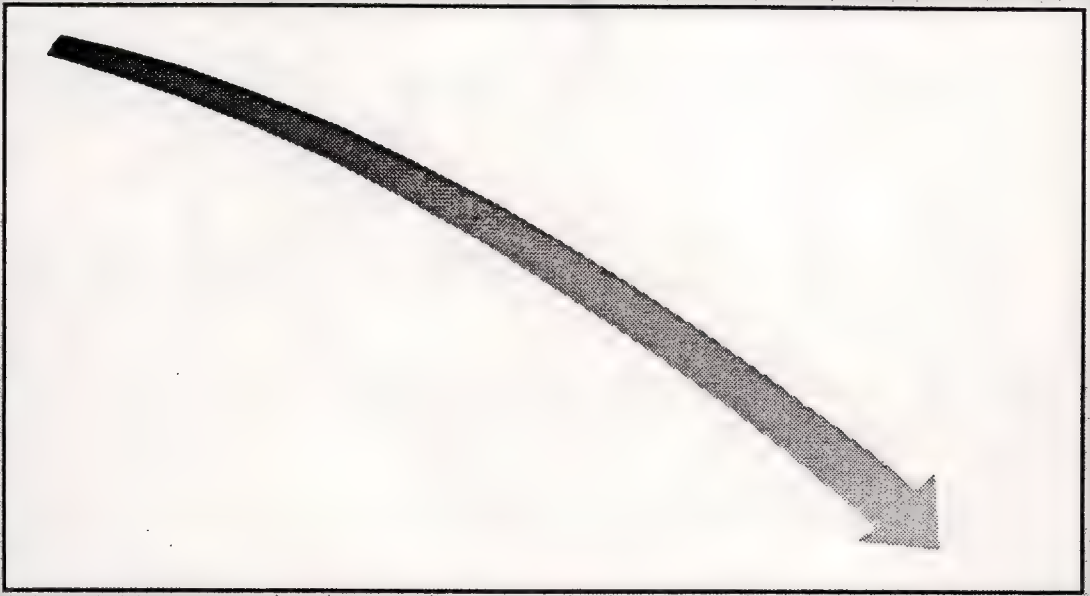
INCREASING COMPETITIVE PRESSURES

IMPROVE CUSTOMER SERVICE LEVELS



AS BUYERS BECOME MORE SOPHISTICATED, HAVING THE PRODUCT AVAILABLE WHEN THE CUSTOMER NEEDS IT BECOMES EVEN MORE IMPORTANT


SERVICE LEVEL
COST



DECREASE COSTS

THE IDEAL

CUSTOMER ORDERS

THE ENTIRE INDUSTRY CHANNEL

REACTS TO DELIVER THAT ORDER

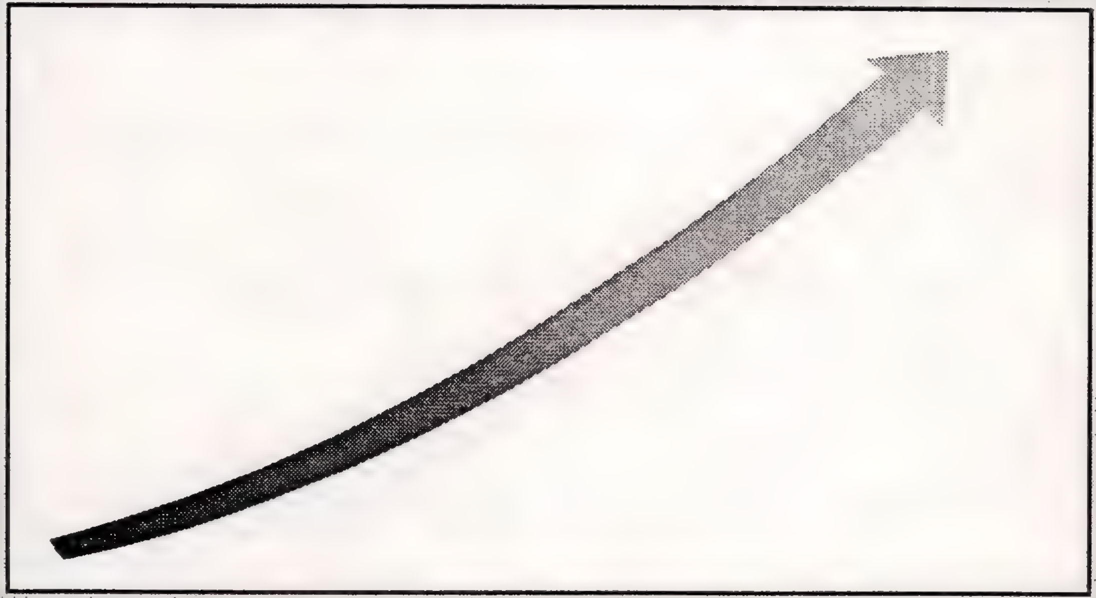
ON TIME WITH ZERO INVENTORIES

THE IDEAL WILL NOT BE REACHED
IN OUR LIFETIMES

HOWEVER

CORPORATIONS ARE KEENLY AWARE
OF THE COST OF INVENTORY
AT EACH STAGE OF THE PROCESS

THEREFORE, THE GOAL OF EVERY CORPORATION IS TO REDUCE INVENTORIES



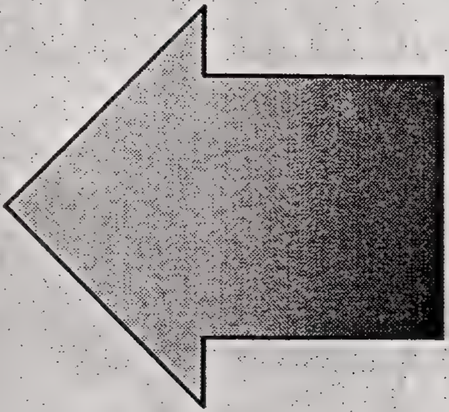
INCREASED NEED FOR INFORMATION

JUST IN TIME INVENTORIES

REPETITIVE OR FLEXIBLE MANUFACTURING

TOTAL QUALITY CONTROL

EVOLUTION OF THE COMPUTER INDUSTRY



COMPUTER HARDWARE

1974	$1,000,000 +
1988	$2,000

COMPUTER SOFTWARE

1974	CUSTOM ACCOUNTING SYSTEM $2,000,000
1988	OFF THE SHELF PACKAGE $20,000

TELECOMMUNICATIONS

1974	TIMESHARE, A LACK OF STANDARDS
1988	VANS, LANS, WANS MODEMS

THE WORLD IS A LOT MORE LITERATE IN THE USE OF COMPUTERS TODAY

COST OF USING IS A LOT LOWER

AH HA !

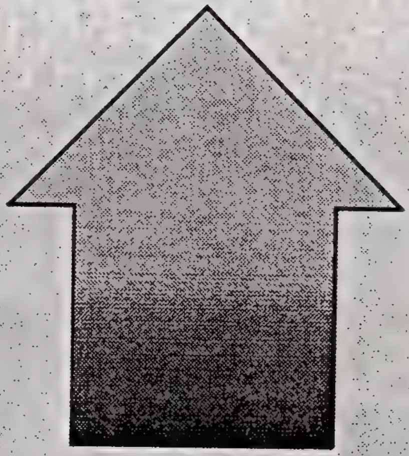
IF OUR CUSTOMERS AND SUPPLIERS CAN ACCESS OUR COMPUTER SYSTEMS DIRECTLY WE CAN SAVE TIME AND MONEY

CITED BENEFITS

- REDUCED ORDER HANDLING
- FASTER PLACEMENT
- FASTER PROCESSING
- REDUCED ENTRY ERRORS
- REDUCED INVENTORY
- BETTER CASH FLOW
- TIMELY INFORMATION
- HIGHER LEVEL OF SERVICE
- IMPROVED COMMUNICATIONS
- FEWER STOCK-outs

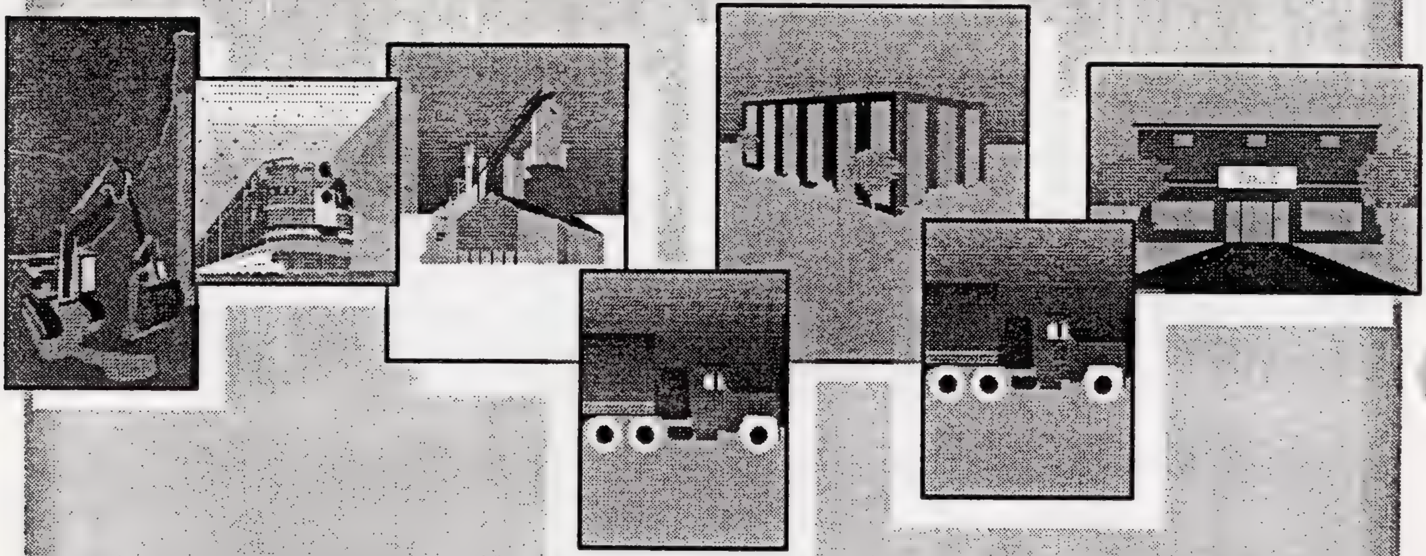
OH BOY !

LARGE CORPORATIONS REDEFINITION OF CHANNEL STRATEGY AND MANAGEMENT

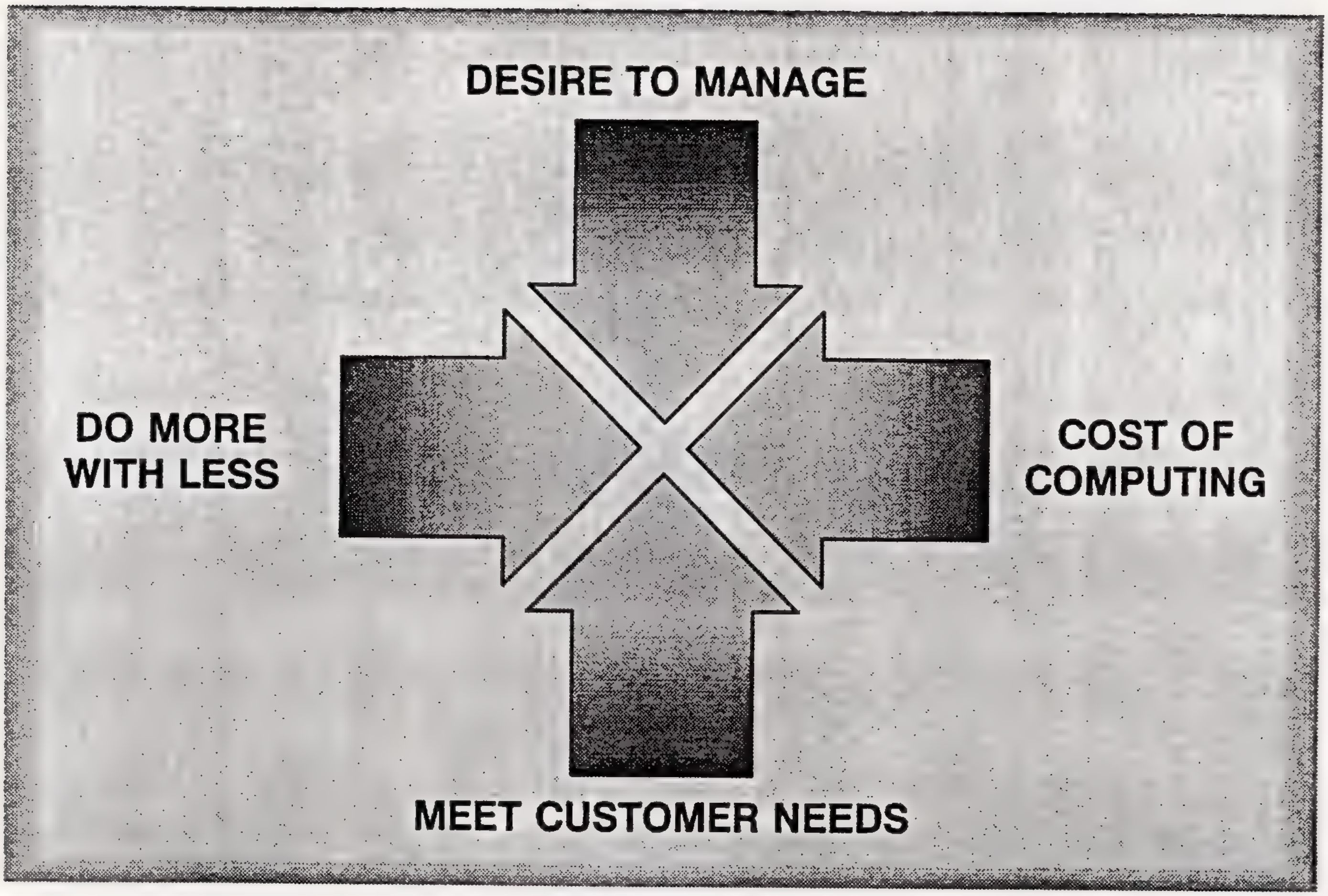


- MANUFACTURING COSTS ARE DECREASING
- SG&A & CHANNEL COSTS ARE INCREASING
- SEEKING COMMON GOALS
- INHERENT CONFLICT
- EVERYONE ACTS ECONOMICALLY RATIONALLY
- EVERYONE SEEKS COMPETITIVE ADVANTAGE
- FEWER HIGH QUALITY PARTNERSHIPS

MANAGE THE VALUE CHAIN...



THAT TAKES INFORMATION

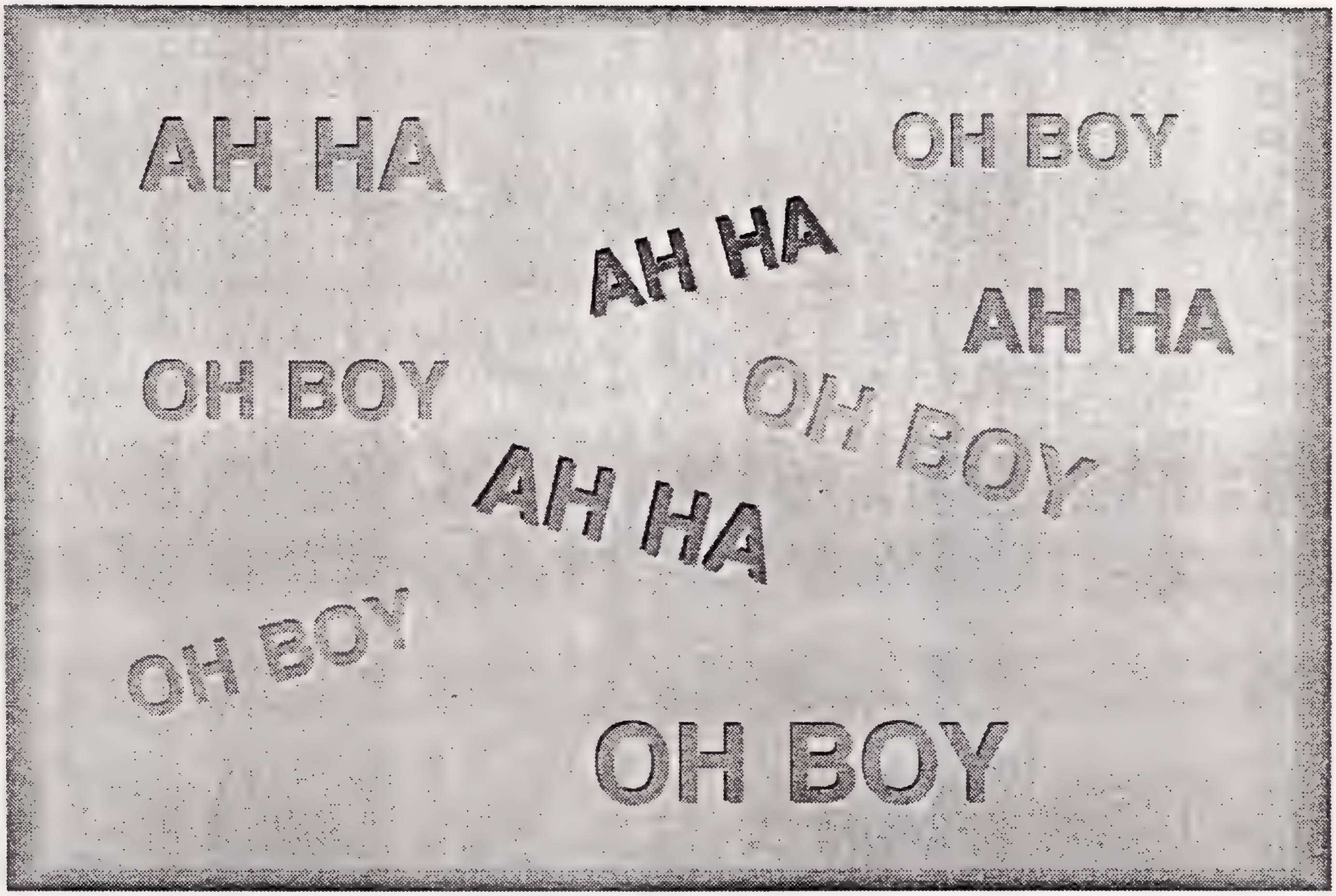


DESIRE TO MANAGE

DO MORE WITH LESS

COST OF COMPUTING

MEET CUSTOMER NEEDS


AH HA
OH BOY
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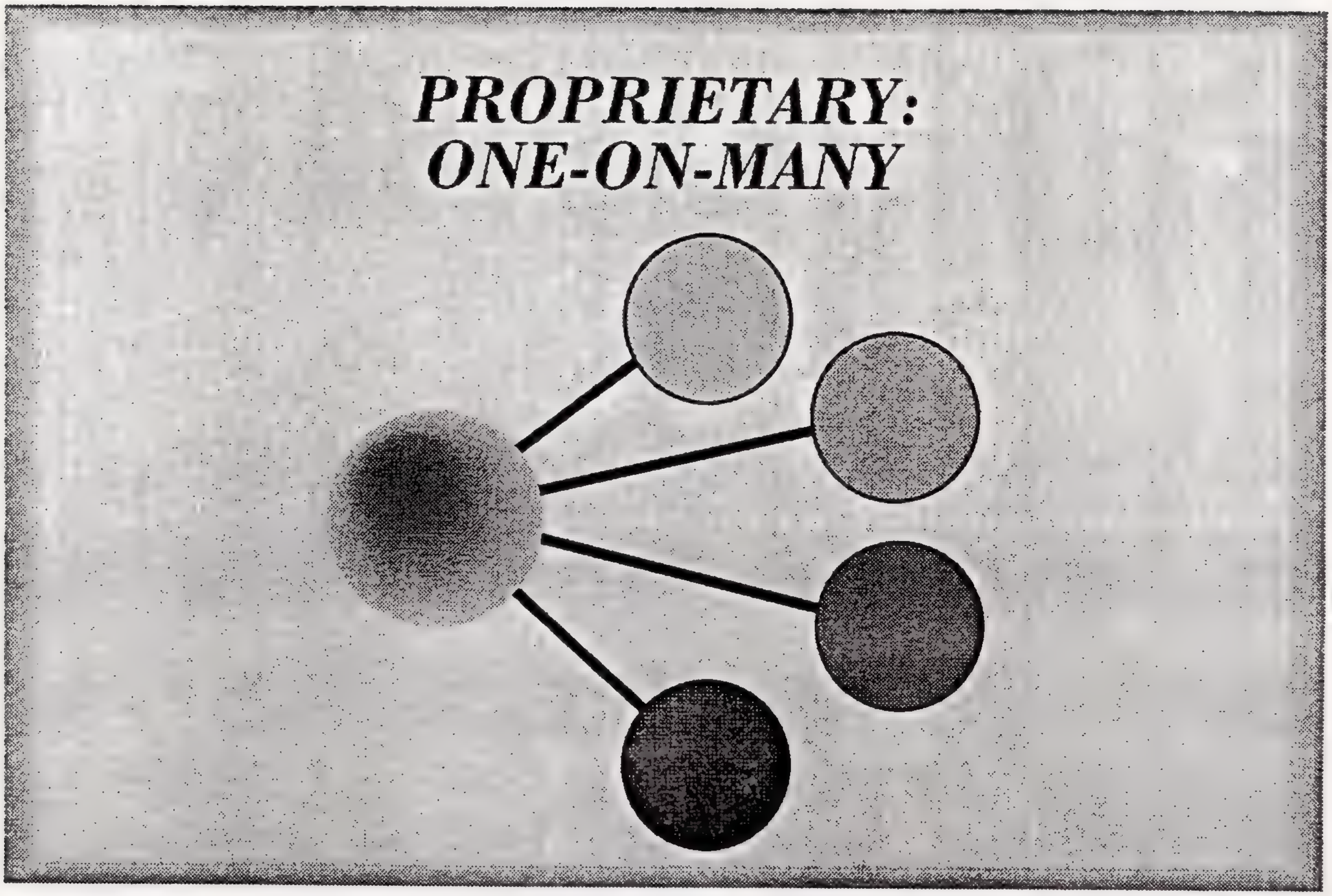
OH BOY

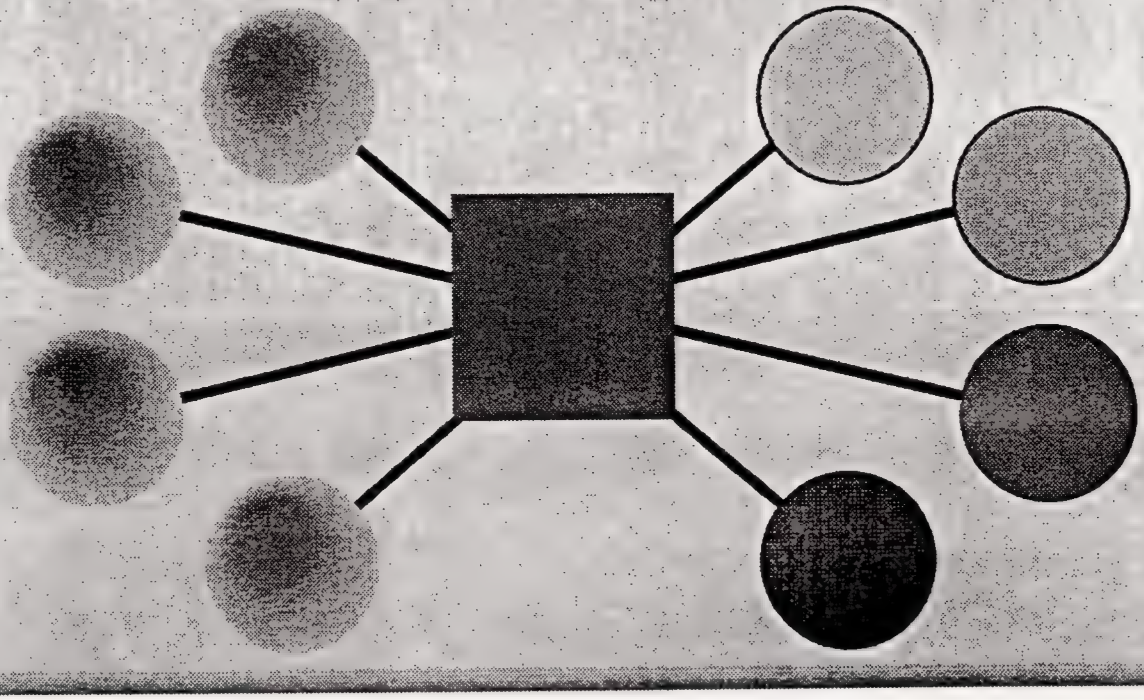
THE “IDEAL” ELECTRONIC DATA INTERCHANGE SYSTEM

COMPANIES
HAVE A CHOICE



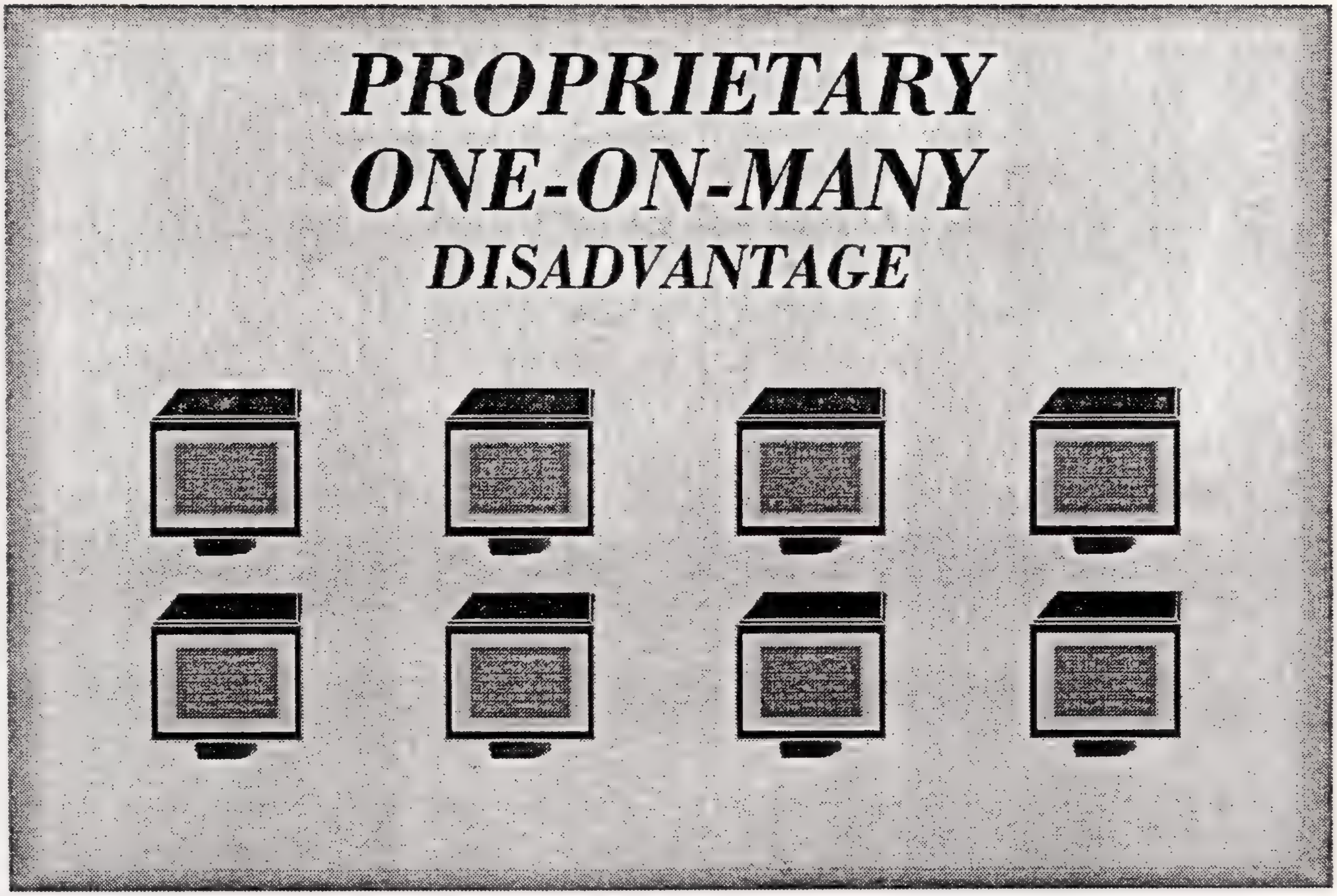
PROPRIETARY: ONE-ON-MANY

INDUSTRY STANDARD: MANY-ON-MANY



PROPRIETARY ONE-ON-MANY
ADVANTAGE

- **EASY TO IMPLEMENT**
- **“LOCKS” IN CUSTOMERS**



PROPRIETARY
ONE-ON-MANY
DISADVANTAGE

INDUSTRY STANDARD MANY-ON-MANY

ADVANTAGES

- **CAN COMMUNICATE WITH ALL INDUSTRY SUPPLIERS**

INDUSTRY STANDARD MANY-ON-MANY

DISADVANTAGES

- **LOSE ON-LINE INQUIRY CAPABILITY**
- **COST**

BASIC BUSINESS PHILOSOPHY

- ALL PARTIES USING AN EDI SERVICE SHOULD GAIN ECONOMIC BENEFITS

BASIC BUSINESS PHILOSOPHY

- **AN EDI SYSTEM SHOULD FACILITATE BOTH THE SENDING AND RECEIVING OF STANDARD BUSINESS DOCUMENTS AND ALLOW FOR ON-LINE INQUIRY CAPABILITIES**

BUSINESS TRANSACTIONS

CATALOG DATA
DATALOG UPDATES
RFQ's
QUOTATIONS
PRICING DATA
P.O.'s
ORDER INQUIRIES
SHIPPING ADVICES
P.O. CHANGES
INVOICES
DEBIT MEMOS
PAYMENTS

BASIC BUSINESS PHILOSOPHY

- AN EDI SYSTEM SHOULD BE INDUSTRY STANDARD
- ANSI X.12 EIDX

BASIC BUSINESS PHILOSOPHY

- **AN EDI SYSTEM NEEDS TO BE INTEGRATED WITH A COMPANY'S IN-HOUSE COMPUTING ENVIRONMENT**

BASIC BUSINESS PHILOSOPHY

- AN EDI SYSTEM SHOULD HAVE LOW ENOUGH COSTS SO THAT CRITICAL VOLUME INFORMATION CAN FLOW. THE CONSTRUCTION OF AND ACCESS TO DATA BASES WILL PROVIDE SIGNIFICANT VALUE

PROVIDE BENEFITS TO ALL USERS

- ASSET MANAGEMENT

  INVENTORY
  - PARTS LOCATOR
  - PRODUCT BULLETIN BOARD
  - SHIP AND DEBIT

- CASH

  SHIP AND DEBIT

- CUSTOMER SERVICE

  DIRECT INQUIRIES

  PRICE BOOK UPDATES

- DIRECT COSTS

  TARRIFF DATA BASE INTERFACE

- S&A EXPENSE

  FULL EDI TRANSACTION SETS

WHILE USING YOUR IN-HOUSE SYSTEM TO ACCESS THE EDI FUNCTIONS

WHERE IS EDI TODAY?

COMPANIES OFFER

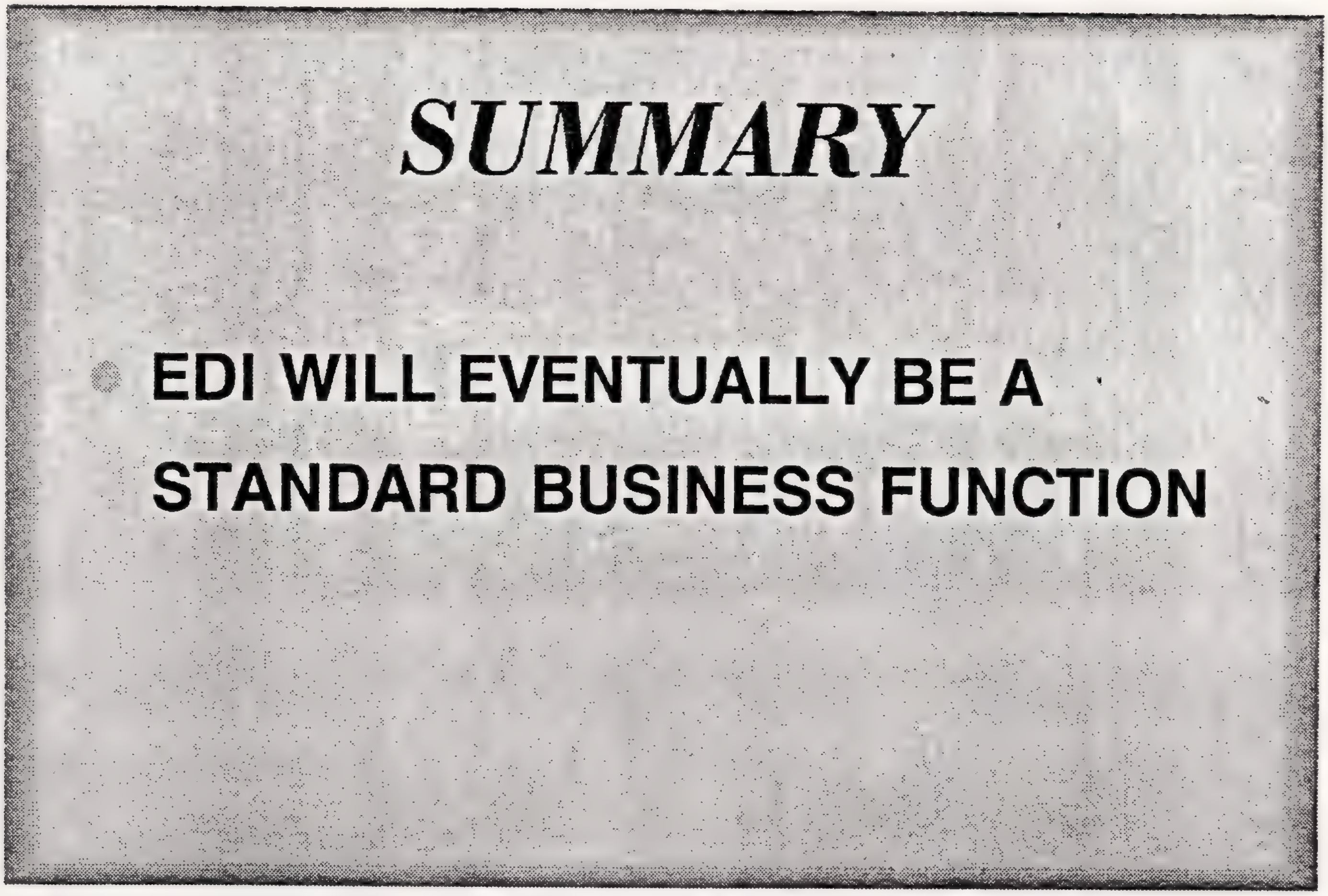
Proprietary online systems

- AMP
- Sprague
- Beldenwire

For many companies it is a step backward

Traditional EDI Systems Offer Batch Transmission of Standard Documents

MAJOR ISSUE



SUMMARY

- EDI WILL EVENTUALLY BE A STANDARD BUSINESS FUNCTION

- ALL PARTIES USING AN EDI SYSTEM SHOULD BENEFIT FROM ITS USE

- THE DISTRIBUTOR CAN ACHIEVE ENORMOUS BENEFITS BY PARTICIPATION IN AN INDUSTRY-WIDE SYSTEM

THE DISTRIBUTOR HAS
INFORMATION THAT SUPPLIERS
WOULD LIKE TO HAVE

Donald J. Holtz
Vice President, EDI Services
AUTOMATIC DATA PROCESSING, INC.

Don Holtz is the vice president of EDI Services for Automatic Data Processing, Inc. (ADP). ADP is the largest independent computer services firm in the United States with revenues in excess of $1.6 billion. EDI (electronic data interchange) Services was created to meet the increasing demands for computer-to-computer transmission of business data.

Don held management and analysis positions in the MIS groups of large pharmaceutical and automotive companies prior to joining ADP's Network Services in 1975. While he was with Network Services, Don proved to be a valuable asset in the field and at headquarters. His last assignment before being promoted to EDI Services resulted in ground-breaking work in the area of computer-aided logistics for the Air Force.

As vice president of EDI Services, Don is charged with the development of a nationwide network that is affordable and usable by both large and small distributors and manufacturers. A native of Detroit, Don lives in Sparta, NJ with his wife and two children. Don holds BSE and MBA degrees from the University of Michigan.

INSURANCE INTERFACE EDI

Robert Y. Barham Jr.

President

Insurance Value-Added
Network Services

INPUT®

EDI INTERTRENDS CONFERENCE
SAN FRANCISCO
JULY 28-29, 1988

INSURANCE INTERFACE EDI

- A MAN BY THE NAME OF C.E. AYERS ONCE SAID THAT A LITTLE INACCURACY SAVES A WORLD OF EXPLANATION.

- HE'S RIGHT... SO WITH SOME SIMPLIFICATION AND A BIT OF ACCEPTABLE INACCURACY, I PLAN TO TALK SOME ABOUT INSURANCE AND INTERFACE AND EDI.

- THERE'S A DEGREE OF DISCOMFORT IN BEING HERE, FRANKLY, BECAUSE TO BE SO, IMPLIES SOMETHING.

  - IT IMPLIES IVANS MAY KNOW SOMETHING ABOUT EDI THAT IT DOESN'T.

  - OR THAT IT MAY HAVE SOME DEGREE OF EXPERTISE THAT IT DOESN'T.

- OR HAVE SOME SPECIAL EXPERIENCE.

- OR BE ABLE TO PROVIDE KEEN INSIGHTS.

- OR GIVE SPECIALLY ASTUTE ADVICE.

- OR SPEAK TO KNOTY TECHNICAL ISSUES.

o NOT SO. IN FACT, WE ARE NOT FULLY SURE WE KNOW JUST EXACTLY WHAT EDI IS... OR WHAT IT IS IN YOUR TERMS. BUT WE MAY BE DOING IT NOW. OR SOMETHING A LITTLE BIT LIKE IT.

o VIC WHEATMAN SEEMED TO THINK YOU MIGHT BE INTERESTED IN WHAT WE ARE DOING... AND WHY.

- IN HOW EASY OR TOUGH ITS BEEN

- IN THE PROBLEMS WE'VE ENCOUNTERED

  - IN HOW WELL ITS GONE

  - AND IN WHAT WE EXPECT TO DO IN THE FUTURE.

- - - - - . - - - - - . - - - - - . - - - - - . - - - - - -

o IVANS IS AN ACRONYM. IT STANDS FOR INSURANCE VALUE ADDED NETWORK SERVICE

o TO UNDERSTAND WHY WE EXIST, YOU NEED UNDERSTAND A FEW BASIC THINGS ABOUT THE INSURANCE INDUSTRY.

  - OUR SPECIFIC INTEREST STARTED OUT AS A SUB-SET OF A SUB-SET OF THE INSURANCE INDUSTRY

  - WE WORK IN PARTICULAR WITH THE PROPERTY AND CASUALTY INDUSTRY. THAT'S THE PART THAT INSURES YOUR

HOUSE... YOUR AUTOMOBILE... YOUR BOAT OR OFFICE BUILDING. AND INSURES YOU AGAINST LIABILITY SUITS.

- IN FACT, OUR FOCUS HAS BEEN ON A SUB-SET OF THAT PIECE OF THE INSURANCE INDUSTRY... ON WHAT IS KNOWN AS THE AMERICAN AGENCY SYSTEM.

o THAT PIECE OF THE INDUSTRY HAS HAD SPECIAL PROBLEMS... ESPECIALLY WHEN COMPARED TO ITS COUNTER PIECE CALLED DIRECT WRITERS.

o THAT'S NOT GOING TO BE AS CONFUSING AS IT SOUNDS. BUT IT NEEDS UNDERSTANDING TO UNDERSTAND WHY 'INTERFACE' OR INSURANCE EDI HAS COME ABOUT.

- THE DIRECT WRITERS ARE COMPANIES YOU KNOW SUCH AS ALLSTATE OR STATE FARM. COMPANIES WHO DISTRIBUTE THEIR PRODUCT TO YOU

DIRECTLY THROUGH THEIR OWN SALES FORCE... THEIR OWN EMPLOYEES.

- THEY ARE NOT OUR FOCUS. OURS IS THE OTHER GROUP OF COMPANIES YOU KNOW... THE COMPANIES WHO DISTRIBUTE PRODUCT THROUGH THE NATION'S 50,000 INDEPENDENT INSURANCE AGENTS.

  - THESE AGENTS MAY, IN FACT DO, REPRESENT MORE THAN ONE COMPANY ... OFTEN MANY COMPANIES.

- THAT FACT OF MULTI-COMPANY REPRESENTATION RAISES THE ISSUES THAT HAVE CAUSED IVANS AND AN INSURANCE FORM OF EDI TO EXIST.

- WHY?

- BECAUSE A DIRECT WRITER SELLS THROUGH ITS OWN SALES FORCE. IN MANY RESPECT

- IT CAN CONTROL ITS OWN DESTINY

- IT CAN DESCRIBE EXACTLY THE PRODUCT IT SELLS

- IT CAN USE COMMON FORMS

- IT USES STANDARD WORDING, DESCRIPTIONS, LAYOUTS

- IT CAN CHARGE STANDARD, KNOWN PRICES

- IT CAN STIPULATE COMMON PRACTICES & PROCEDURES... EXACT ONES

o THE DIRECT WRITER CAN DECIDE TO AUTOMATE... OR NOT... CAN DECIDE WHAT TO AUTOMATE... HOW TO AUTOMATE... WHAT EQUIPMENT TO USE... WHETHER TO COMMUNICATE ELECTRONICALLY.

- IT CAN, IN EFFECT, DETERMINE AND CONTROL HOW ITS OWN DISTRIBUTION WORKS... FROM ORDERING, TO PRICING, TO CONFIRMATION, TO DELIVERY, TO INVOICING AND TO COLLECTING.

o WHAT AN ORDERLY WORLD! WHAT AN OPPORTUNITY TO STANDARDIZE PROCESS ... TO HONE COST... TO ENHANCE SERVICE.

o BUT PITY THE POOR INDEPENDENT

- IN THIS PIECE OF THE INDUSTRY 100s OF COMPANIES BID, SELL & DELIVER PRODUCT THROUGH INDEPENDENT AGENCIES.. THROUGH NEARLY 50,000 OF THEM, IN FACT.

- A COMPANY MAY SELL THROUGH MORE THAN 1000... SOME THROUGH MORE THAN 10,000 SUCH AGENCIES.

  - AND EACH OF THESE AGENCIES DOES ITS OWN THING... HAS ITS OWN PRACTICES... DEVELOPS ITS OWN PROCEDURES.

  - EACH IS AUTOMATED... OR NOT. EACH CHOOSES ITS OWN EQUIPMENT... IT'S OWN SOFTWARE.

  - EACH MAY... OR MANY NOT... BE PREPARED TO INTERFACE, TO COMMUNICATE ELECTRONICALLY.

o AND CONSIDER THE WORLD FROM THE AGENCY'S POINT OF VIEW.

  - THE AGENCY WILL DO BUSINESS WITH A NUMBER OF COMPANIES... PERHAPS AS FEW AS 4... AS MANY AS 20

o THE AGENCY MAY WANT TO CONSIDER COMPETING PRODUCTS, BUT IT WILL FIND THAT:

  - APPLICATIONS DIFFER

  - ENDORSEMENTS DIFFER

- FORMS & FORMATS MAY DIFFER
- PRICES DIFFER
- TERMS & CONDITIONS DIFFER
- COMPANY'S WILLINGNESS TO BID MAY DIFFER

o WE & THE GREEKS SHARE A WORD FOR THIS ... IT'S CALLED CHAOS.

o THERE ARE MORE ACCURATE WORDS: SLOW ... INEFFICIENT... UNRESPONSIVE... ERROR PRONE.

o BUT THE MOST DESCRIPTIVE WORD FOR THIS IS UNCOMPETITIVE.

o CONSIDER WHAT HAPPENS:

- YOU, THE PROSPECT, TALK TO AN AGENT, THE SALESMAN.

- YOU PROVIDE INFORMATION ABOUT YOURSELF AND YOUR NEEDS.

- THE AGENT RECORDS THAT DATA ABOUT WHO, AND WHAT AND WHERE YOU ARE.

- HE RECORDS INFORMATION ABOUT WHAT TO PROTECT... AND FROM WHAT ... AND TO WHAT VALUE.

- IN EFFECT... THE TWO OF YOU DEVELOP A SMALL PURCHASING SPEC.

o THEN THE AGENT WILL NEED SEND THAT INFORMATION TO A SUPPLIER... TO AN INSURANCE COMPANY. BUT HE WILL FIND THAT A LOT TOUGHER THAN DOES HIS DIRECT WRITING COMPETING SALESPERSON.

- FIRSTLY, DIFFERING COMPANIES MAY SEEK DIFFERENT DATA.

- THEY MAY SEEK IT ON DIFFERING FORMS

- AND THE AGENT MAY WISH QUOTES FROM A NUMBER OF SOURCES.

o TRADITIONALLY, THIS PROCESS HAS BEEN LABOR INTENSIVE, HAS USED THE MAIL SYSTEM, HAS BEEN DUPLICATIVE. IT WAS INCREDIBLY ERROR PRONE AND CLEARLY SLOW AND UNRESPONSIVE.

- AGENTS & COMPANIES ALIKE, OF COURSE, WERE FACED WITH DATA ENTRY COST.

o DIRECT WRITERS ON THE OTHER HAND WERE ABLE TO RESPOND TO THEIR DISTRIBUTION SYSTEM NEEDS.

- BY STANDARDIZATION

- BY AUTOMATION

- BY INTERFACE... ELECTRONIC COMMUNICATION

o THEY, THUS, REDUCED COSTS

REDUCED ERRORS
SPED TURN AROUND
OPTIMIZED CUSTOMER SERVICE

- TAKE A TEST! GUESS WHO LOST MARKET SHARE TO WHOM?

- NOW YOU UNDERSTAND THE ENVIRONMENT... DOING SOMETHING ABOUT THE EFFICIENCY OF THE QUOTE, ORDER AND DISTRIBUTION PROCESS WAS NOT JUST NICETY, FOR THE INDEPENDENTS, IT WAS A NECESSITY.

- THIS CHAOTIC STATE OF AFFAIRS FINALLY FORCED ACTIONS.

  - EARLY ACTIONS PRESSED... PRETTY SUCCESSFULLY... FOR STANDARDIZATION OF PAPER FORMS... ON APPLICATIONS, ENDORSEMENTS, CLAIMS NOTICES AND SO FORTH.

  - THESE MANUAL EFFORTS WERE LARGELY FOSTERED BY THE LARGE NATIONAL

AGENCY ASSOCIATIONS AND TRULY HELPED.

- o BUT BY THE START OF THIS DECADE, IT WAS CLEAR THAT DIRECT WRITERS... AND SOME OF THE LARGEST INDEPENDENTS, HAD NOT STOOD STILL.
  - SALES AGENTS HAD PURCHASED OR BEEN GIVEN DUMB TERMINALS OR MINI-COMPUTERS.
  - THESE COMPANIES HAD PROCEEDED TO AUTOMATE THEIR DISTRIBUTION PROCESS AND WERE PROVIDING COMMUNICATIONS INTERFACES TO THEIR HOME OFFICES.
- o THIS CRITICAL COMPETITIVE PRESSURE THEN IS WHAT SPAWNED IVANS.
  - THE PAPER STANDARDS, NOT ENOUGH, NEEDED TO EVOLVE INTO ELECTRONIC STANDARDS.

- SOMEONE NEEDED TO ADDRESS THE PROBLEMS OF ENABLING THOUSANDS OF UN-ALIKE AGENTS TO COMMUNICATE WITH HUNDREDS OF COMPANIES IN AN UNCONTROLLED TECHNICAL ENVIRONMENT.

o RECALL... WHILE MANY OF THESE AGENCIES WERE AUTOMATED, THEY HAD DISSIMILAR EQUIPMENT. EQUIPMENT MANUFACTURED:

- BY APPLE, DATA GENERAL, DEC, HONEYWELL

- BY NCR, TANDY, IBM

- BY AT&T , WESTERN UNION

o YOU NAME IT, THEY HAD IT. AND THEY WOULD NOT THROW IT AWAY. THEY HAD:

- LINE MODE DEVICES

- AND FULL SCREEN DEVICES

  - AND PCs
  - AND MINI-COMPUTERS
  - AND DUMB TERMINALS

- o WORSE... THIS EQUIPMENT USED MULTIPLE COMMUNICATIONS PROTOCOLS.

    - BSC
    - ASC
    - SDLC

- o COMPANIES, ON THE OTHER HAND, ALMOST ALL HAD IMPLEMENTED IBM'S SNA PROTOCOLS ON HOME OFFICE SYSTEMS.

- o YOU SEE THE PROBLEM

  - HUNDREDS OF DEVICE TYPES
  - PROTOCOL VARIATIONS

- INABILITY TO FORCE COMMONALITY

o HOW WERE COMPANIES TO COPE WITH THIS? THEY SIMPLY COULD NOT AFFORD TO DEAL WITH ALL OF IT.

o SO IVANS BECAME THE VEHICLE TO ENABLE THESE DISPARATE ENTITIES TO TALK TO EACH OTHER.

- OUR CONCEPT WAS TO INTERPOSE A VALUE ADDED NETWORK BETWEEN COMPANIES AND AGENCIES.

o THAT NETWORK WOULD HAVE THE CAPABILITY TO SHIELD COMPANY AND AGENCY ALIKE FROM ALL THE DISPARITY:

- IT WOULD PROVIDE DEVICE ATTACHMENT TESTING

- IT WOULD ACCOMMODATE UNLIKE DEVICES

- IT WOULD PROVIDE PROTOCOL CONVER-

SIONS

- IT WOULD PROVIDE FORMAT CONVERSIONS

- IT WOULD SUPPORT BOTH INTERACTIVE AND BATCH COMMUNICATIONS ACTIVITY.

- IT WOULD SHARE COSTS

o CRITICALLY, THE NETWORK WOULD NEED RECOGNIZE THE VERY SPECIAL CHARACTERISTIC OF THIS INDUSTRY.

  - THAT THE COMPANY, NOT THE AGENT, PAYS FOR THE COMMUNICATIONS.

  - THUS, IN AN ENVIRONMENT OF USERS COMMUNICATING WITH UNPREDICTABLE FREQUENCY, WITH UNPREDICTABLE PARTNERS, IN UNPREDICTABLE AMOUNTS... SOMEONE NEEDS ALLOCATE THIS UNPREDICTABLE MIX OF TRADING PARTNERS.

  - THE ACCOUNTING, COST ALLOCATION AND BILLING PROBLEM IS NO TRIVIAL

MATTER IN THIS ENVIRONMENT.

- o IN SHORT, IVANS FACED A SET OF PROBLEMS SOMEWHAT AKIN TO THOSE DESCRIBED BY PEOPLE INTERESTED IN EDI.
  - WE PLANNED TO ENABLE TRADING PARTNERS TO COMMUNICATE.
  - WE SOUGHT A WAY TO ATTRACT THE NECESSARY CRITICAL MASS OF TRADERS TO MAKE THAT WORK.
- o ONE PROBLEM WAS PERHAPS SOMEWHAT UNIQUE.
  - THAT IS, THAT THE BUYERS IN GENERAL ARE VERY SMALL. INDIVIDUALLY, THEY ARE OF MINIMAL INTEREST TO THE SELLER. AND THEY HAVE NO REAL INDIVIDUAL PURCHASING POWER. SO A WAY HAD TO BE FOUND FOR THE VENDORS TO PAY THE TAB. AND A WAY HAD TO BE FOUND TO GET A MASS OF TRADERS, TRADING.

- WHAT DID WE DO?

  - THE 1ST STEP WAS TO INTEREST A GROUP OF COMPANY EXECUTIVES AND THE NATIONAL AGENCY ASSOCIATIONS IN THE PROJECT.

  - THE ASSOCIATIONS QUICKLY SUPPORTED THE IDEA. COMPANIES WERE TOUGHER, BUT FINALLY AGREED TO PARTICIPATE.

  - COMPANIES FUNDED IVANS START-UP THROUGH CASH ASSESSMENTS AND IVANS CONTRACTED FOR VALUE ADDED NETWORK SERVICES FROM IBM/IN.

  - FOR PRACTICAL PURPOSES, TRAFFIC BEGAN TO FLOW BETWEEN AGENTS & COMPANIES IN JANUARY 1984.

- HOW DID IT GO?

  - IT WENT SLOWLY... SLOWLY AND PAIN-

FULLY. PARTICIPATION BY PERHAPS THE 35 LARGEST COMPANIES WOULD HAVE BEEN A FAIR MEASURE OF SUCCESS... AND NEEDED TO CONSTITUTE ADEQUATE CRITICAL MARKET MASS.

- BUT CHARTER COMPANY MEMBERS TOTALLED ONLY 21.

- MORE CRITICALLY, 7 OF THE INDUSTRY'S 10 LARGEST AND MOST VISIBLE COMPANIES WERE CONSPICUOUS IN THEIR ABSENCE.

- WORSE... THEY DIDN'T JUST FAIL TO JOIN, THEY REJECTED MEMBERSHIP.

- SOME WHERE FRANK TO SAY THEY HOPED IVANS WOULD FAIL.

o COMPANIES WHICH DID JOIN, DID START TO REGISTER AGENTS ONTO THE NETWORK... BUT IVANS HAD EXPECTED PERHAPS 2000 BY THE END OF YEAR ONE. IT GOT 600.

- IN FACT, IT TOOK ABOUT 2 1/2 YEARS TO REACH THE LEVEL OF AGENCY PARTICIPATION EXPECTED BY THE END OF THE 1ST YEAR.

o WHAT WENT WRONG? MANY THINGS WENT WRONG.

- READINESS WAS A SERIOUS PROBLEM. IBM/IN WAS READY... IVANS WAS READY, BUT ALMOST NO ONE ELSE WAS.

- COMMITMENT WAS A PROBLEM... SENIOR EXECUTIVES HAD MADE THE DECISION TO PARTICIPATE. BUT THAT DECISION WAS A COUPLE OF YEARS OLD BY DELIVERY TIME. OFTEN THE SYSTEMS AND MARKETING PEOPLE HAD NOT BEEN BROUGHT ON BOARD AND WERE NOT COMMITTED.

- COSTS WERE A PROBLEM... AS RESULT OF THE CHICKEN AND EGG PROBLEM OF CRITICAL MASS. WE NEEDED DENSE GEOGRAPHICAL COVERAGE TO ATTACH

USAGE... AND COULDN'T AFFORD IT DUE TO THE LACK OF USE... WE NEEDED LARGE VOLUME TO LOWER UNIT OVERHEAD... AND HIGH OVERHEAD PREVENTED LOW PRICING... AND HIGHER PRICES DISCOURAGED LARGE VOLUMES.

- UNCERTAINTY WAS A PROBLEM... ACCEPTANCE IS CRITICAL TO A MARKET PLACE. AND WITH SO MANY OF THE INDUSTRY'S MAJOR COMPANIES SITTING ON THE SIDELINES, MANY OTHERS WERE UNCERTAIN OF IVANS' SURVIVAL... AND WANTED TO WAIT AND SEE.

o WHERE ARE WE NOW? FORTUNATELY, WE ARE IN A NEW WORLD... A SUCCESSFUL ONE.

- WE HAVE GROWN FROM 21 TO 40 PROPERTY & CASUALTY MEMBER COMPANIES.

- 23 LIFE COMPANIES HAVE JOINED US.

- ABOUT 30 SOME ODD OTHER INTERESTED INDUSTRY PARTICIPANTS HAVE

JOINED AND ARE STARTING TO SELL PRODUCT INTO WHAT IS EVOLVING INTO AN ELECTRONIC MARKETPLACE.

- AND FOR THE FIRST TIME, WE ARE SEEING THE HEALTH INDUSTRY APPROACH US... TWO STATE BLUE CROSS ASSOCIATIONS HAVE JOINED.

- ALL TOGETHER, SOME 6500 P&C AGENTS ARE ATTACHED AND SOME 1500 OTHER USERS.

o CRITICALLY: OF THE GROUP OF 7 LARGE COMPANIES WHICH REFUSED TO JOIN... ALL BUT TWO ARE NOW USING US... AND I BELIEVE THESE TWO WILL JOIN.

- ESPECIALLY ENCOURAGING IS THE FACT THAT SOME OF THE QUITE SMALL COMPANIES... THOSE WHO FELT THEY COULD NEVER AFFORD INTERFACE, HAVE NOW JOINED.

- YET MORE OF THOSE ARE NOW INQUIR-

ING ABOUT WHAT IS INVOLVED IN JOINING.

- FINALLY, WE HAVE TURNED THE FINANCIAL CORNER. LAST YEAR WE EARNED A COMFORTABLE PROFIT.
  - THAT HAS GROWN CONSIDERABLY THROUGH THE 1ST HALF OF THIS YEAR.
  - AND IT HAS PERMITTED US TO REDUCE PRICES TO DRIVE INCREASED VOLUMES.
- WHERE ARE WE GOING NOW?
  - WE BELIEVE THAT THE OVERWHELMING MASS OF INDUSTRY TRANSACTIONS WILL MOVE ELECTRONICALLY, IN TIME.
  - COST AND RESPONSIVENESS ISSUES WILL DRIVE THAT. COMPANIES NOT PARTICIPATING WILL FACE SERIOUS LOSS OF MARKETS, OVER TIME.

- WE BELIEVE THAT 75% TO 80% OF AGENCIES WILL INTERFACE ELECTRONICALLY, BUT THAT TODAY'S 48-50,000 AGENCIES WILL HAVE DECLINED IN NUMBER BY ABOUT 25%.

- WE BELIEVE THAT MAJOR VENDORS OF INFORMATION SERVICES TO BOTH AGENCIES AND COMPANIES WILL USE US AS AN ORDERING AND DELIVERY VEHICLE.

- THIS IS STARTING ALREADY, WITH VENDORS OF SUCH ITEMS AS CREDIT REPORTS, MOTOR VEHICLE REPORTS AND THEFT REPORTS USING US.

o WE HAVE ATTRACTED A STARTER SET OF LIFE & HEALTH COMPANIES... THAT WITHOUT DEVOTING ANY MARKETING RESOURCE TO THEM.

- WE BELIEVE THAT GROUP WILL GROW AND THAT THE MANY INDUSTRY INTERRELATIONSHIPS WILL ENCOURAGE

THEIR USE OF IVANS RATHER THAN OTHER NETWORKS.

- o FINALLY, WE ARE EXPLORING AN OPPORTUNITY WHICH MORE CLOSELY FITS THE CLASSIC VIEW OF EDI.
  - THAT IS ELECTRONIC PURCHASING OF CONSUMABLES BY OUR MEMBERSHIP.
- o WE'VE LEARNED SOMETHING ABOUT BUYING LEVERAGE.
  - FIRST WE EXERCISED THAT POTENTIAL DOLLAR VOLUME TO GET ATTRACTIVE NETWORK PRICES.
  - THEN WE AGGREGATED THAT BUYING POWER TO NEGOTIATE ATTRACTIVE PRICES FROM MCI FOR OUR MEMBERS VOICE COMMUNICATIONS REQUIREMENTS.
  - WE BELIEVE THAT SOME AGGREGATED

PURCHASING POWER CAN ATTRACT VERY SPECIAL PRICING ON ALL THE ITEMS INSURANCE COMPANIES PURCHASE.

- o WE ARE IN THE EARLY STAGES OF EXPLORING THAT WITH A SMALL PILOT GROUP OF LOGICAL TRADING PARTNERS.
  - TIME WILL TELL IF THAT TOO IS A SUCCESS FOR US.
  - OUR ADVANTAGE IS THAT WE DO ALREADY NOW HAVE A CRITICAL MASS OF INDUSTRY MEMBERS ON THE NETWORK.
- o THAT'S THE IVANS STORY. WE ARE, WE THINK, DOING SOMETHING A LITTLE LIKE EDI... BUT WITH AN INDUSTRY TWIST.
  - AND WE HAVE PLANS TO DO SOMETHING A LITTLE CLOSER TO WHAT YOU MAY VIEW AS MORE CLASSIC EDI... BUT AGAIN, WITH A TWIST.

Robert Y. Barham Jr.
President
INSURANCE VALUE-ADDED NETWORK SERVICES

Mr. Barham joined IVANS in October, 1985. He was formerly Manager of IBM's Industry Marketing Group, where he identified the property and casualty insurance industry as a prime candidate for networking services. Barham created the proposal that formed the basis of IVANS and initiated IBM's insurance industry networking development.

Bob Barham enjoyed a 28-year career with IBM, handling a wide range of responsibilities, including management of IBM's European headquarters staff in Paris.

SOFTWARE PROVIDER ROUNDTABLE WHAT'S NEW AND DIFFERENT?

Carl Drisko
President
Interchange Systems

INPUT®

EDI EVOLUTION

ISOLATION

INTEGRATION

ISOLATED EDI

- Isolated Industries
- Isolated Companies
- Isolated Departments
- Isolated Computer Systems
- Isolated Standards
- Isolated Applications

INTEGRATED EDI

- Cross-Industry Acceptance
- Increased Company Participation
- Use by Multiple Departments
- Inter-connected / Distributed Computers
- Widely-accepted, International Standards
- Integrated Applications

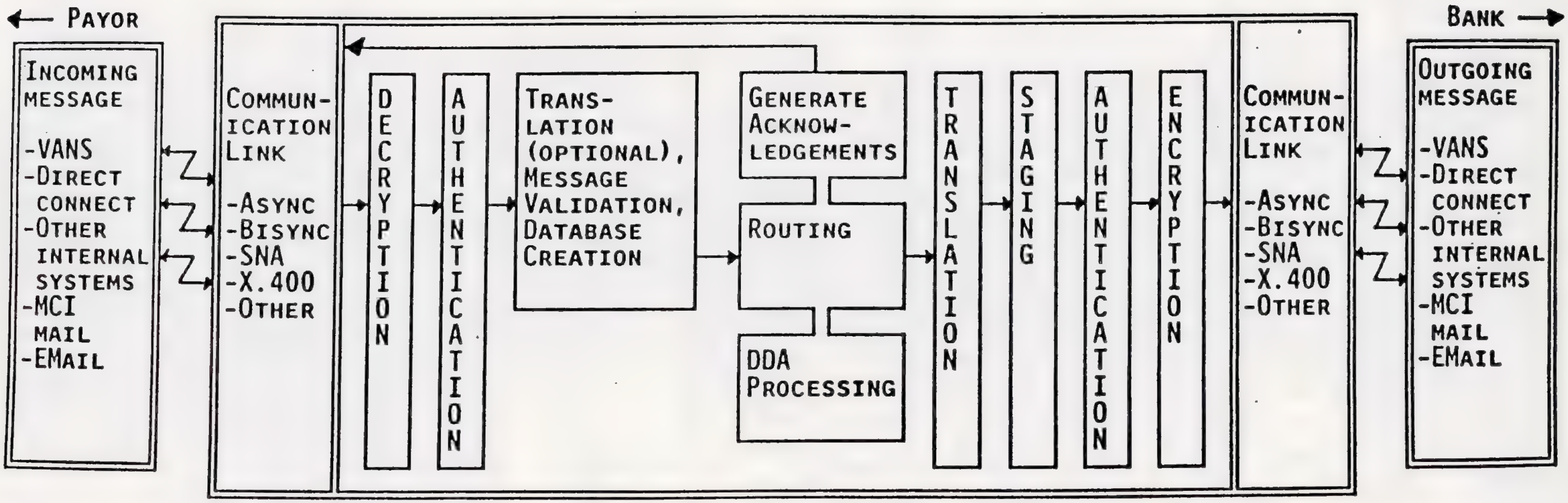
ISOLATED EDI SOFTWARE

- o Decoupled Communications
- o External Communications Only
- o Single Communications Link
- o Little or No Security
- o Simple Translation From/To Flat Files
- o Single Standard Support
- o Limited Number of Transaction Sets
- o Loosely-coupled Application Interface
- o Few Audit Trails
- o No Inquiry Facilities
- o Extensive Operator Interaction

INTEGRATED EDI SOFTWARE

- Tightly-coupled Communications
- Internal and External Communications
- Tight Security
- Robust Translation (Fixed and Variable Length)
- Multiple Supported Standards
- Large Number of Support Transaction Sets
- Tightly-coupled Application Interfaces
- Complete Audit Trails
- Robust Inquiry Facilities
- Automated Operation

NETPAY SYSTEM
(BANK)



Project Details

Interchange Systems, Inc. (ISI) (President and co-founder)

- NETPAY. Design and implementation of NETPAY, a system designed to transfer funds and detailed remittance data from payors to suppliers via banks. NETPAY uses the X12 electronic data interchange standard, is highly secure, and includes translation facilities between various EDI and EFT formats, including BAI (lockbox) and all corporate ACH formats (CCD, Vendor Express, CTP and CTX).

- NETMATE. Part of the design team for NETMATE, a product for EDI payment processing for corporations. NETMATE is designed to integrate EDI payments with Accounts Receivable and Accounts Payable systems in a highly auditable, highly secure environment.

- Utlas International. Design and implementation of a system for Library acquisition, including electronic purchase orders, Invoices, Payments, and Funds Accounting.

- First Manager: Payments Module for the First National Bank of Chicago. The FirstManager: Payments Module is a corporate cash management system through which bank corporate customers can send payment instructions for funds transfers to the bank via computer. It also handles balance reporting and account reconciliation.

- Pritzker & Pritzker. CPU-to-CPU interface of an Accounts Payable system with a bank's funds transfer area.

- Cash Position. A system for monitoring a bank's position (net of debits and credits) with the Federal Reserve throughout the day.

- BankSearch. BankSearch is a bank address/correspondent lookup database system designed to give corporations and financial institutions access to funds transfer addressing information. BankSearch has been integrated with several leading money transfer systems.

- Global Money Transfer Payments Product. Mr. Drisko helped design a major money center bank's product offering for international corporate money transfer.

- BESS. BESS is one of the world's leading wholesale wire transfer systems, developed and marketed by Logica Data Architects. Mr. Drisko was Chief Designer and Project Leader for the BESS Payments System, and so played a major role in the design and implementation of the following BESS related products:

BESS Wireroom: Automated telex handling, including bisynchronous communications, routing, parsing, and an automated testwording facility.

BESS Payments: All of the functions necessary for payment processing.

Advice-To-Receives: Automated matching of expected items to actual payments.

FedWire: Implementing full FedWire protocol and message-handling facilities.

S.W.I.F.T.: Implementing full S.W.I.F.T. protocol and message-handling facilities.

CHIPS: Implementing full CHIPS protocol and message-handling facilities.

- Designed and developed Commerical Accounts Payable and Commercial Accounts Receivable products for a leading micro-computer software products firm.
- Numerous consulting studies for banks and corporations for the automation of their payments processing.

R. Carl Drisko
President
INTERCHANGE SYSTEMS, INC.

Carl Drisko is the president and a cofounder of Interchange Systems, Inc. (ISI), the leading software developer of bank-oriented EDI packages. Mr. Drisko is an acknowledged expert in payment systems and electronic funds transfer. He is also widely recognized in the computer science community as an expert in optimization.

Prior to forming ISI, he founded Momemtum Software, Inc., a software product firm specializing in banking systems. His earlier experience includes serving as a product manager at Data Architects, Inc. (now Logica Data Architects), where he was responsible for identifying markets for international banking systems and investigating companies and products for potential acquisition.

At Data Architects, Mr. Drisko also held positions as Chief Designer and Project Leader for BESS, a comprehensive wholesale electronic funds transfer system, and he performed extensive systems design and consulting for major money center banks.

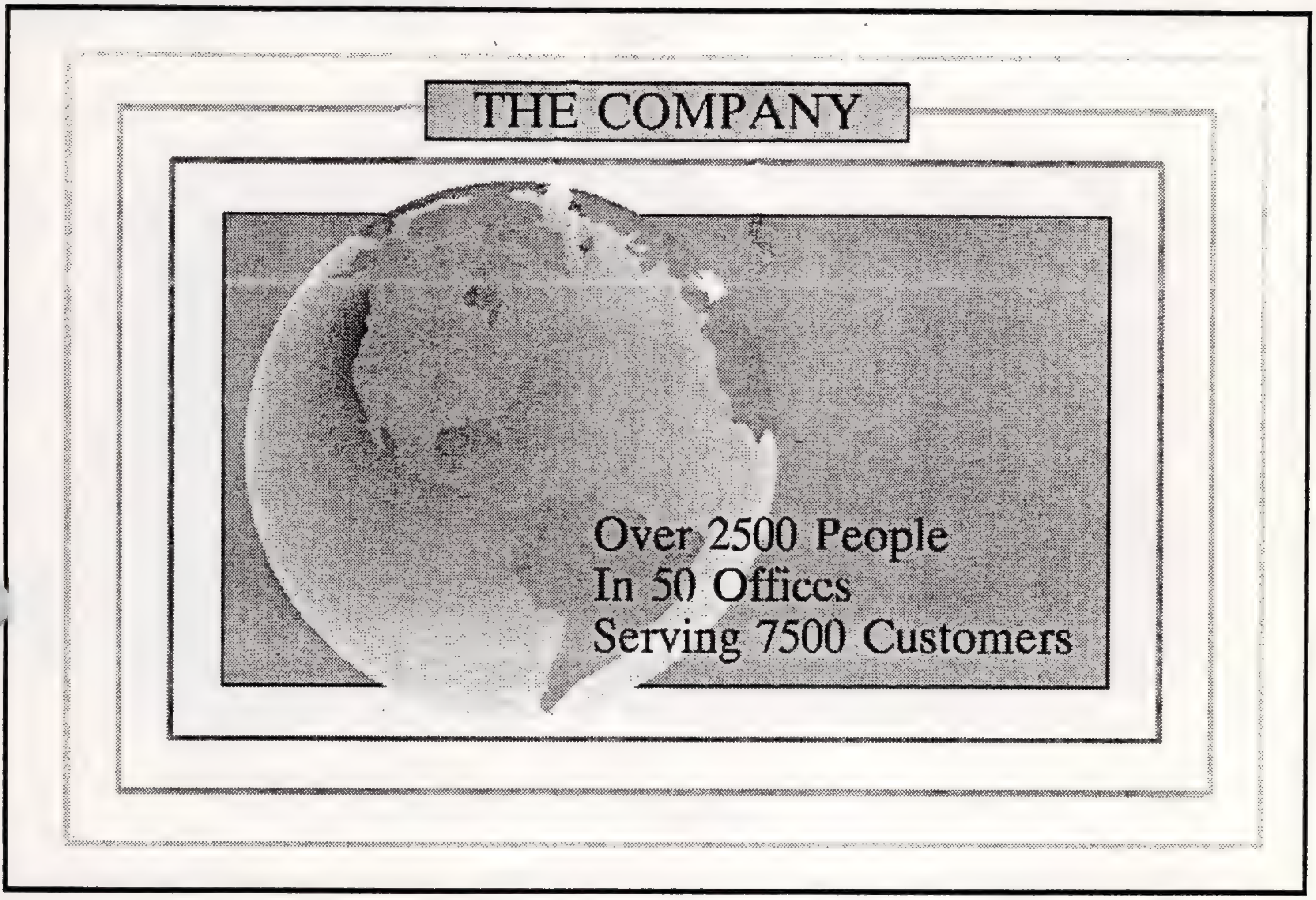
Prior to joining Data Architects, Mr. Drisko held technical positions at Ithaco, Inc., Serendipity Systems, and the CBORD Group. At these companies he developed data acquisition systems, microcomputer-based business systems, and material resource planning (MPR) systems for food services. He has also been an independent consultant.

Mr. Drisko is a graduate of Cornell University, where he received bachelor's degrees in applied and engineering physics and history and a master's degree in computer science. He is the author of several papers on topics in astrophysics and computer science.

SOFTWARE PROVIDER ROUNDTABLE
WHAT'S NEW AND DIFFERENT?

Frank Buchheit
Senior Consultant
MSA

INPUT®



THE COMPANY

Over 2500 People
In 50 Offices
Serving 7500 Customers

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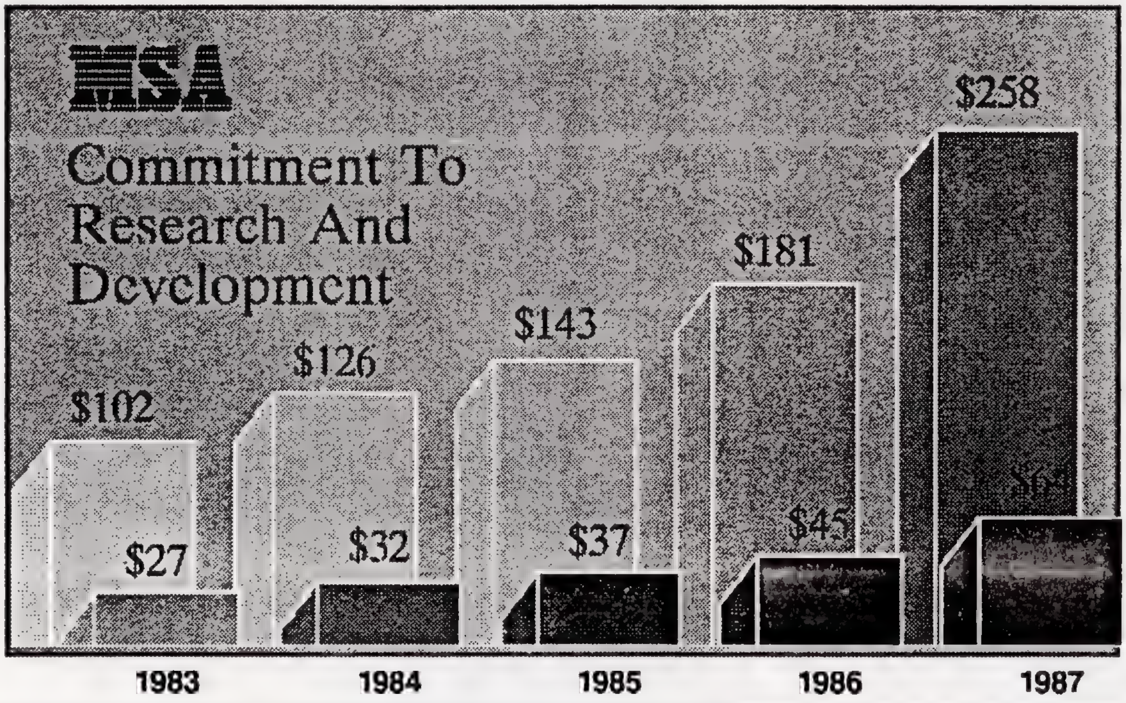

MSA

Commitment To Research And Development

Revenue and Product Development Expenditures in Millions

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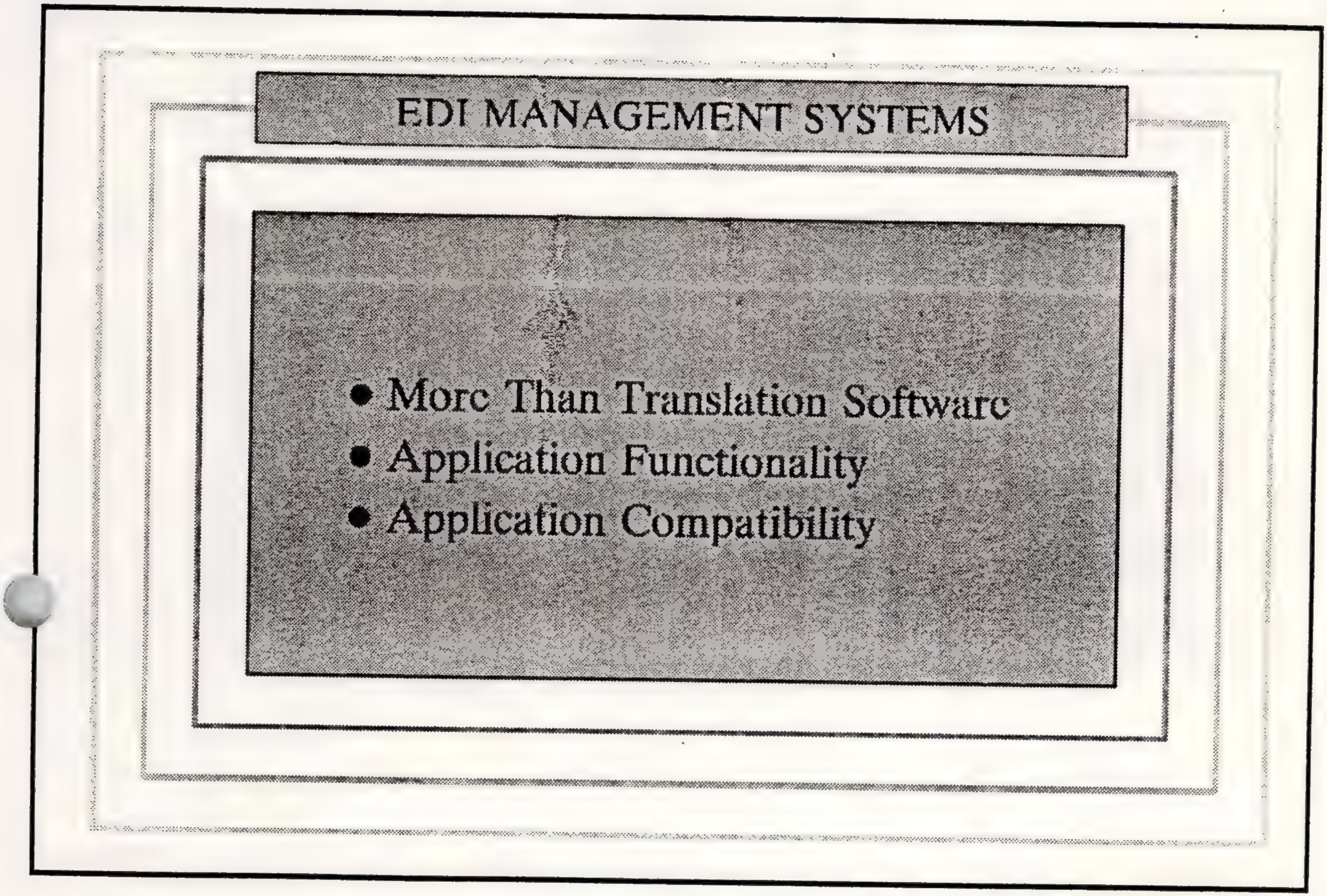


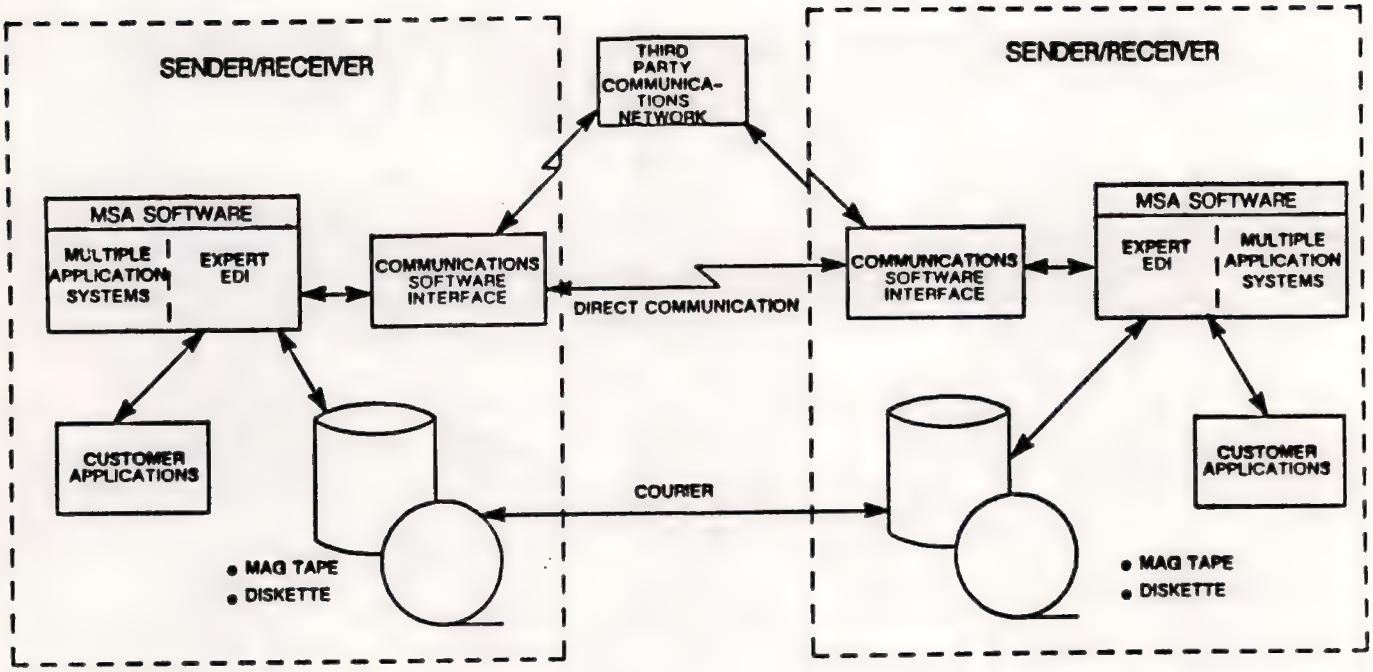
EDI MANAGEMENT SYSTEMS

- More Than Translation Software
- Application Functionality
- Application Compatibility

Expert EDI
Key Strategies

- Application-to-application communications
- Standards knowledge base
- Exchange certification
- Universal network interface
- Consulting and education support

EDI ENVIRONMENT



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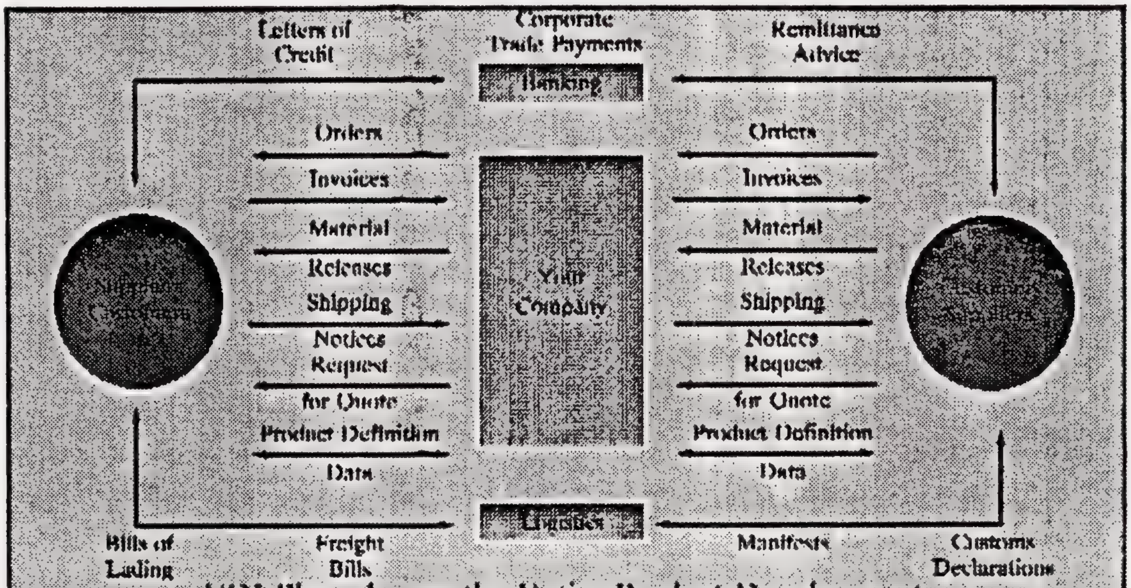
THE CHALLENGE: EXPANDED APPLICATIONS



Letters of Credit

Corporate Trade Payments

Remittance Advice

Banking

Orders

Invoices

Material Releases

Shipping Notices

Request for Quote

Product Definition Data

Your Company

Logistics

Bills of Lading

Freight Bills

Manifests

Customs Declarations

EDI Plays Across the Entire Product Development, Order, and Payment Cycle

Frank Buchheit
Senior Consultant
MSA

Frank Buchheit is a senior consultant specializing in electronic data interchange (EDI) for MSA. He is responsible for the marketing and sales support for logistics management systems with particular emphasis on EDI and purchasing.

Mr. Buchheit's previous experience includes 16 years with two major Fortune 500 companies, where he held various positions in purchasing and materials management programs for both domestic and international operations.

Mr. Buchheit is a professional member of the Purchasing Managers Association of Georgia and the National Association of Purchasing Managers. He is also active on the ANSI X.12 committee for maintaining EDI standards. Mr. Buchheit has a bachelor of science in business administration from the University of Tennessee and is a certified purchasing manager.

SOFTWARE PROVIDER ROUNDTABLE
WHAT'S NEW AND DIFFERENT?

Jim Bert
Vice President of Sales and Marketing
ACS Network Systems

ACS Network Systems
1485 Enea Court
Concord, CA 94520
415/827-3820
Jim Bert

Founded 1987

Sole Business: EDI Management Software
Development, Sales, and Support

IBM Mid-Range Computers
EDI 36 EDI 38 EDI 400

One Definition of EDI:

"The sending and receiving of business documents electronically from one company's computer application to another's."

Application to Application

EDI HOLDUP

Internal decisions centering around elimination of paper

Integration of EDI software
with existing application software

EDI Software
Available from three sources

1. EDI Software Company
2. EDI Network Providers
3. Some Application Software Houses

Most application software companies
don't provide EDI software

Awareness
Large Programming Investment
Communications Expertise
Cross Industry Knowledge
ANSI Participation
Customer Education and Support
Price Point

Most Do Provide

Understanding of Customer's Business

Paper Flow

Application Software

Maintenance and Support

EDI Software Company

Provide for easy integration with applications software
by allowing input and output files to be user defined

Integrated Communications Modules

Active Participation in Standards Organizations

Network Company Relationships

Cross Industry Committment

Knowledge and Support

EDI Software <<>>---<<>> Application Software

FUTURE

"The management software that supports
a company's EDI efforts will be purchased from the application software provider."

Won't be Written Internally

Tightly Integrated

Supported

James A. Bert
Vice President of Sales and Marketing
ACS NETWORK SYSTEMS

James Bert has spent over 15 years in the data processing industry.

He has held sales management positions with ITEL Corporation, Computer Sciences Corporation, and On-Line Business Systems.

Mr. Bert came to ACS from Totaltrak, a manufacturer of turnkey, point-of-sale computer systems, where he was vice president and treasurer.

Mr. Bert has a BS from Lake Forest College, Illinois.

SOFTWARE PROVIDER ROUNDTABLE
WHAT'S NEW AND DIFFERENT?

Ted Annis
Chief Executive Officer
Supply Tech, Inc.

EDI

- Trends
- Intertrends
- Developments
- New Directions

Trends

Broader Use of EDI

- Nationally
- Internationally

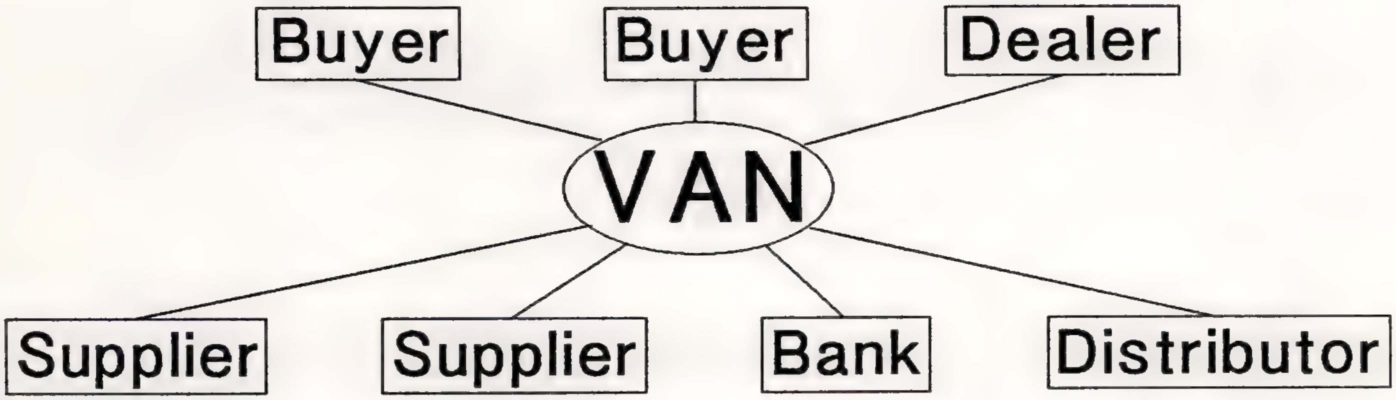
Many Large Scale Efforts in Planning and Pilot Stages

Better Understanding of EDI Standards

More Pressure on EDI Standards Efforts

Additional Documents by Existing Users

More VANs


Buyer
Buyer
Dealer
VAN
Supplier
Supplier
Bank
Distributor

Disappearance of Many EDI Software Offerings

Hard Coded Solutions Can't Easily Keep Up With Additional Documents, Trading Partners, etc.

Appearance of Some New EDI Software Offerings

In General, Fierce Competition Among:

- VANs
- EDI Software Developers

Lower Prices

Intertrends

International Standards (EDIFACT) Acceptance

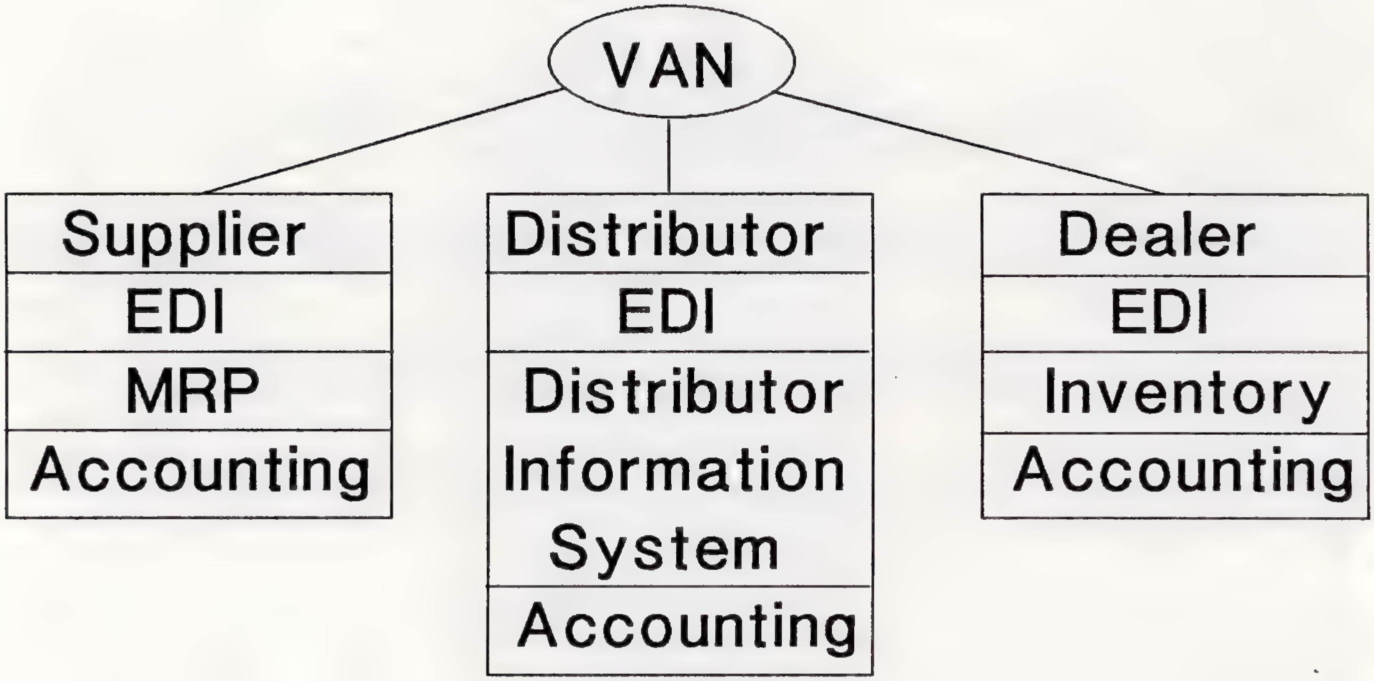
International Debate Over EDIFACT Evolution

International Communications Transport Capabilities Required of All VANs

International Confusion
(For a While)

Interconnection Among VANs

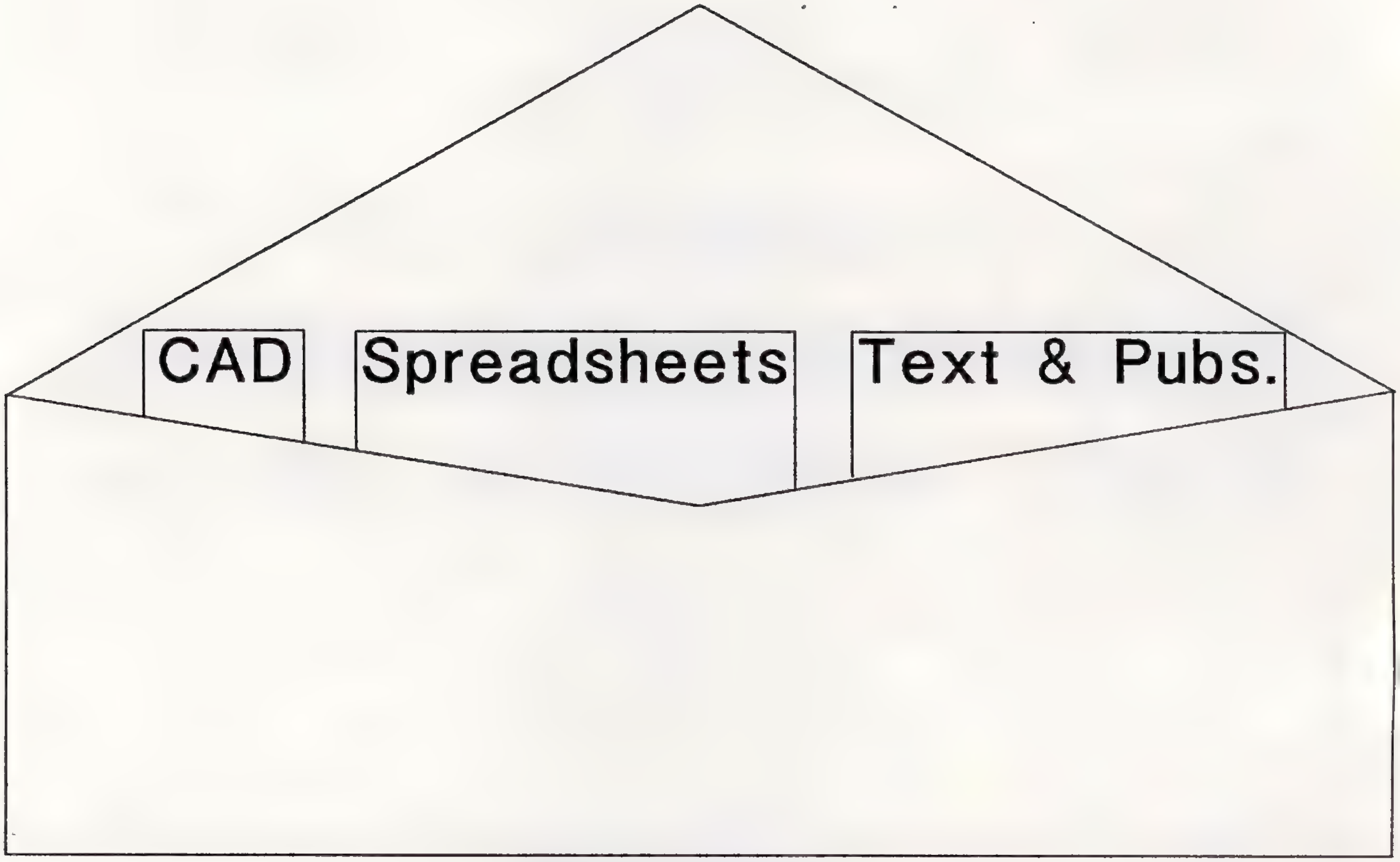
Integration of EDI Software Within Other Commercial Software


VAN
Supplier
EDI
MRP
Accounting
Distributor
EDI
Distributor Information System
Accounting
Dealer
EDI
Inventory
Accounting

Interface of EDI With the Engineering Activity

Interface of EDI With "Standard" Store and Forward Capability

Intermixing of Non-Standard EDI Data Within the EDI Envelope



EDI Envelope

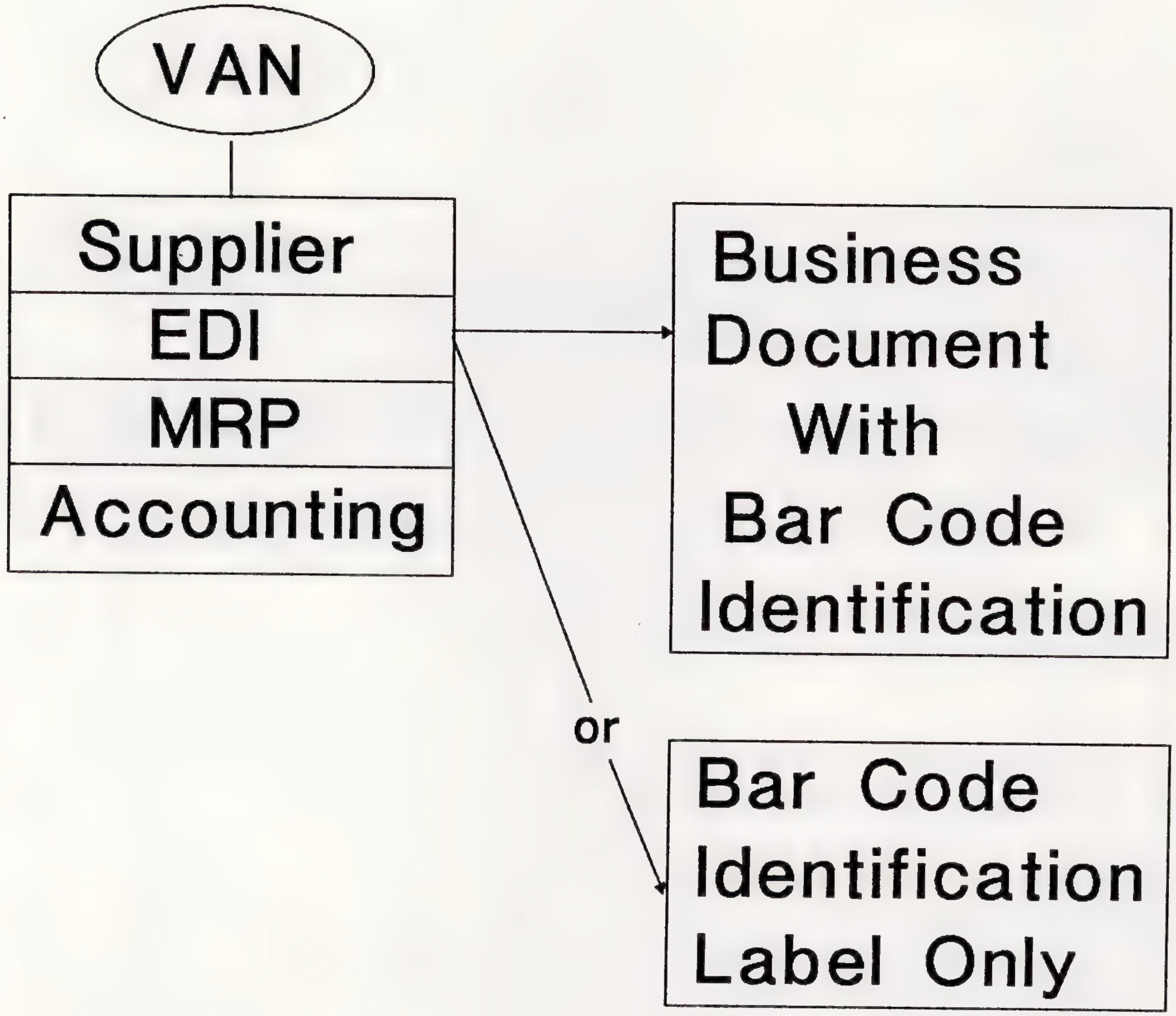
This Ability to Intermix is a Result of the Addition of the "EDI Paperclip" to the ANSI Standard

The "EDI Paperclip" is the New XFR Segment Invented by Supply Tech's President Gail Jackson

Intermingling of ANSI ASC X12, TDCC, and EDIFACT Standards

Intracompany Use by Decentralized Companies

Integration of Bar Coding With EDI



VAN

Supplier

EDI

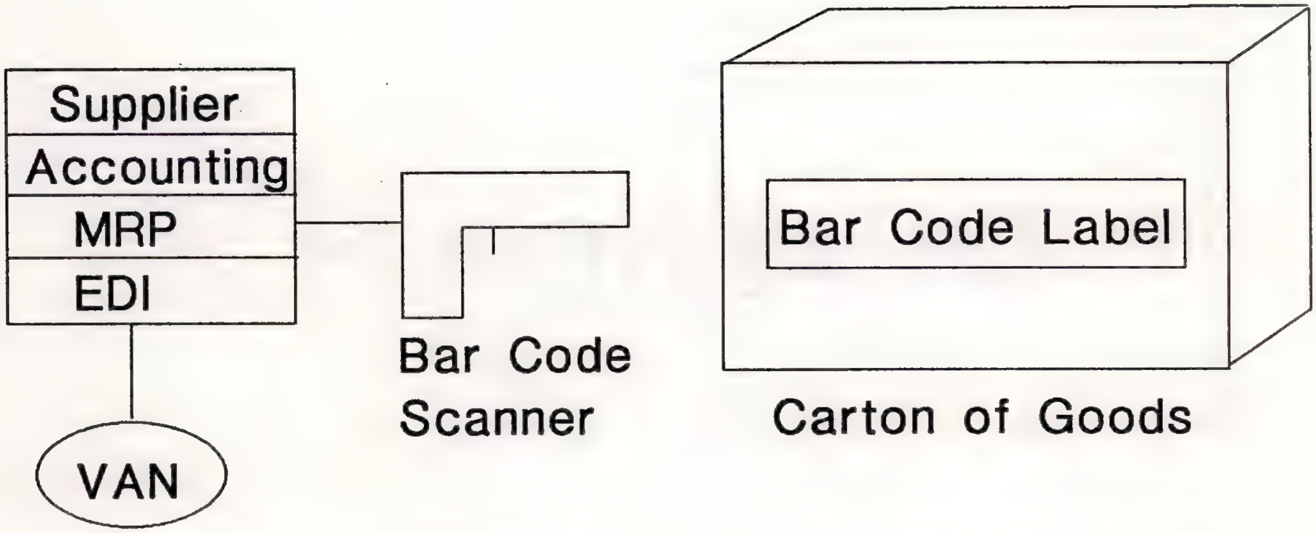
MRP

Accounting

Business Document With Bar Code Identification

or

Bar Code Identification Label Only


Supplier
Accounting
MRP
EDI
VAN
Bar Code Scanner
Bar Code Label
Carton of Goods

Developments

High-Speed, Low-Cost Transport Over Voice Grade, Dial-Up Lines

- Advanced Modems
- Telebit -- 19,200 bps

New Directions

Transport of CAD Data Within the EDI Standard

LAN-to-LAN
Store and Forward
Transport

LAN-to-VAN Store and Forward Transport

Use of
Advanced Protocols

Transport Within the X.400 Framework

Ted C. Annis
Chief Executive Officer
SUPPLY TECH, INC.

Ted C. Annis is one of four founders of Supply Tech, Inc. Founded in 1984, Supply Tech designs, produces, and markets EDI and bar-coding software. Before starting Supply Tech, Mr. Annis spent 19 years with Ford Motor Company developing applications for production control, shop floor, labor performance, accounting, warehousing, real-time monitoring, and inventory systems. Prior to joining Ford, he was with Central Trust Company Bank.

Mr. Annis has a BS degree and an MBA degree from Xavier University.

SOFTWARE PROVIDER ROUNDTABLE WHAT'S NEW AND DIFFERENT?

Hank Lavery

TranSettlements

INPUT®

TRANSLINK

The Total EDI Solution
Software for Translating – Communicating – Networking

Developed for business and industry by the EDI professionals of

TRANSETTLEMENTS, INC.

Overview

TranSettlements' **TranSlink** product provides a total EDI software solution for translating, communicating, and networking. **TranSlink** runs on a fault-tolerant computer acting as a stand-alone or front-end processor.

TranSlink combines the features and capabilities of:

TranSlate, the leading mainframe EDI translation software which performs the conversion of business data to and from standard EDI data formats

and

TranSend, TranSettlements' network service software product providing a store and forward – store and retrieve value-added service for Electronic Data Interchange.

TranSlink Features

- Structured ANSI/COBOL source code provided.
- Translates to/from user-defined internal data formats.
- Extensive compliance checking for conformance to EDI standards syntax and transaction design rules.
- Maintenance support provided with EDI standards updates, program changes, and enhancements.
- Audit trail and error reports.
- Provides message status, accounting, and statistics.
- Document print images of message data.
- Processing efficiencies.
- Table-driven network and trading partner transmission requirements.
- Data sequencing for application requirements.
- Conversion of element qualifiers to/from internal values.
- Multiple concurrent send/receive sessions.
- Third-party network connectivity.
- Supports dedicated communications lines.
- Autodial/autoanswer asynchronous and bisynchronous communications.
- X.25 and X.32 dialup.
- SNA/SDLC.

Benefits

- Offload EDI processing overhead from host.
- Maintain security for "sensitive" corporate data bases.
- Reduce expensive third-party charges for high-volume trading partners.
- Provide reliable hardware and software for the increasingly crucial electronic exchange of data.

General Considerations

- Proven TranSettlements' EDI standards translation software structure.
- TranSettlements' EDI knowledge, commitment, and reliability through sales, development, and support personnel.

Availability

TranSlink will be ready for installation in the third quarter of 1988.

TranSettlements -- The EDI Professionals

TranSettlements, an Atlanta-based company founded in 1977, has been and continues to be an active participant in EDI standards-setting groups such as the American National Standards Institute (ANSI), Transportation Data Coordinating Committee (TDCC), and others.

The company provides computer-to-computer EDI network services to a growing list of firms and is the leader in providing mainframe software to facilitate the expanding use of EDI technology. TranSettlements' broad experience and in-depth knowledge is made available to clients through consulting services, EDI standards workshops, and seminars.

TranSettlements' customer base includes major national and international companies representing a broad spectrum of industries including automotive, transportation, steel, chemical, pharmaceutical, food, banking, textile, retail, and others.

TRANSETTLEMENTS

If you would like more information on TranSlink or other TranSettlements' EDI products, call or write:

TranSettlements, Inc.
1745 Phoenix Boulevard
Atlanta, Georgia 30349
(404) 996-8109

TRANS*EDI™

Micro Translation Software for Electronic Data Interchange

Developed for business and industry by the EDI professionals of

TRANSETTLEMENTS, INC.

Overview

TRANS*EDI is TranSettlements' microcomputer software product for Electronic Data Interchange. It provides the ability to translate business documents to/from various industry standard formats (ANSI, TDCC, WINS, UCS, etc.).

Data from documents can be input into the screen format provided or can be transferred from existing systems. There are printing capabilities for various documents as required by organizations or trading partners.

TranS*EDI is designed for low-business transaction volume companies who must satisfy EDI requirements of several trading partners.

TranS*EDI Features

- Provides document entry and edit capability:
  - Add, change and delete document
  - Add, change and delete line items
  - Validation of EDI special codes
  - Extends rates and accumulates totals (invoicing)
  - Allows for remarks
- Provides an import function that will accept a fixed format file and re-format it into the **TranS*EDI** document structure.
- Provides selected document print routines.
- Provides a communication script to autodial TranSettlements' TranSend network service in unattended mode for phone line cost efficiency.
- Allows multiple trading partners.
- Automatically assigns EDI control numbers.
- Receives and interprets functional acknowledgments.
- Provides menu-driven system maintenance routines:
  - Update and/or print the customer master file.
  - Update and/or print the special code file.
- Documentation support for installation and use.

System Requirements

- DOS version 2.0 or higher
- 640K RAM, with no memory resident programs active
- XT or AT-compatible computer
- Fixed-disk storage with a minimum of 10 Megabytes
- Hayes-compatible Modem
- Parallel Printer

General Considerations

Easy installation and start-up procedures allow companies to begin exchanging documents with their trading partners quickly after receipt of the package. Menu and input screens are designed to allow existing office staff to use the system without the need for EDI expertise. TranSettlements' provides EDI knowledge, commitment, and reliability through sales, development, and support personnel.

Availability

TranS*EDI – TDCC Transaction Set 210 "Motor Carrier Option" will be available May 1988. Additional ANSI - TDCC sets will be provided in the third quarter of 1988.

TranSettlements -- The EDI Professionals

TranSettlements, an Atlanta-based company founded in 1977, has been and continues to be an active participant in EDI standards-setting groups such as the American National Standards Institute (ANSI), Transportation Data Coordinating Committee (TDCC), and others.

The company provides computer-to-computer EDI network services to a growing list of firms and is the leader in providing mainframe software to facilitate the expanding use of EDI technology. TranSettlements' broad experience and in-depth knowledge is made available to clients through consulting services, EDI standards workshops, and seminars.

TranSettlements' customer base includes major national and international companies representing a broad spectrum of industries including automotive, transportation, steel, chemical, pharmaceutical, food, banking, textile, retail, and others.

TRANSETTLEMENTS

If you would like more information
on TranS*EDI or other TranSettlements'
EDI products, call or write:

TranSettlements, Inc.
1745 Phoenix Boulevard
Atlanta, Georgia 30349
(404) 996-8109

TRANSETTLEMENTS℠

TranSettlements, Inc., 1745 Phoenix Boulevard, Atlanta, GA 30349 404-996-8109

FOR IMMEDIATE RELEASE

For more information:
Patrice Krant
(404) 996-8109

TranSettlements Announces TranS*EDI/Enable Micro EDI Software

Atlanta, GA, June 22, 1988 — TranSettlements, Inc., a leading provider of Electronic Data Interchange (EDI) translation software and network services, announces the addition of TranS*EDI/Enable to its software line. This software is based on a PC application acquired from Shell Oil Company.

Shell Oil Company developed their PC-based application to allow their carriers to transmit freight bills to them electronically in an EDI format, thereby reducing paperwork, data handling, and error rates.

TDCC Set 210 Supported

The initial TranS*EDI/Enable transaction set, TDCC Transaction Set 210 for motor carrier freight bills, allows users to set default special-charge amounts and supports discounts, stop-offs, weight deficits, rated-as weights, minimum charges, and rate-per-hundred ratings. This application provides menu options for extending rates and accumulating totals and prompts the user to add descriptions and remarks. The TranS*EDI/Enable application for Transaction Set 210 also handles bank and/or client numbers for freight payment plans and can receive and interpret functional acknowledgments.

Broad Application for Industry

With the addition of TranS*EDI/Enable, users in targeted industries — automotive, transportation, steel, chemical, pharmaceutical, food, banking, textile, and retail — will soon have direct access (through their PCs) to TranSettlements' full-function TranSend EDI Network Service.

TranS*EDI/Enable was developed from the powerful integrated business automation software package, Enable, published by The Software Group of Ballston Lake, New York. Enable combines word processing, spreadsheet analysis, database management, and telecommunications and has two- and three-dimensional graphics capabilities from both the spreadsheet and database management modules.

TranS*EDI/Enable Features

TranS*EDI/Enable supports single or multiple trading partners. Business documents can be keyed in and edited using the screen format supplied or can easily be transferred to or from existing applications. The print capability allows hard-copy documents to be produced as the organization or trading partners require. The system comes complete with the communication link to automatically dial TranSettlements' TranSend network to send or receive EDI-formatted communications.

TranSettlements' Role

TranSettlements is the developer of the "TranSlate" EDI software for EDI translation. This software supports TranSettlements' "TranSend" EDI Network Service, which has been in continuous operation since 1982 (servicing the transportation industry). TranSettlements also offers Value Added Network services to the ANSI X12 Business Environment. Additional TDCC and ANSI transaction sets for personal computer users will be available later in 1988.

A team of dedicated, professional TranSettlements consultants is available to serve the growing EDI marketplace. These consultants conduct training sessions and assist customers in installing TranSlate, TranSend, and TranS*EDI/Enable; they are also available to implement software upgrades as new standards and transaction sets are released.

TranS*EDI is a trademark product of TranSettlements, Inc.
Enable is a trademark product of The Software Group.

TRANSETTLEMENTS℠

TranSettlements, Inc., 1745 Phoenix Boulevard, Atlanta, GA 30349 404-996-8109

NEWS RELEASE

FOR IMMEDIATE RELEASE
September 21, 1987

Contact: Bob Canis or
Margaret Carlock
(404) 996-8109

TRANSETTLEMENTS TO OFFER UNBUNDLED VERSION OF MAINFRAME EDI TRANSLATION SOFTWARE

Atlanta, Georgia, September 21, 1987 -- TranSettlements, Inc., the leading provider of mainframe Electronic Data Interchange (EDI) translation software announced today the availability of a new TranSlate software package option.

According to Hank Lavery, TranSettlements' Vice-President, the new lower priced option provides the full send and receive EDI translation capabilities along with two user selected transaction sets. Other transaction sets are available at an additional price. TranSettlements still offers the full TranSlate package with all EDI translation capabilities and includes support for currently developed standard transaction sets published by ANSI X12, TDCC, WINS, and UCS.

Bob Canis, Director of Business Development remarked that the new TranSlate option is designed to appeal to companies whose near term EDI plans call for only a few transaction sets. These companies can then add additional transaction sets as required. TranSlate is a proven product accepted and in use by major multi-national Corporations. Making it available to new and developing EDI users at an attractive price is an important objective of this offering, added Canis.

TranSlate supports application-to-application standards based on electronic exchange of invoices, purchase orders, freight transactions and other business documents between trading partners. It is available for a wide variety of vendor mainframe computers. A dedicated team of TranSettlements consultants is available to service user needs. This team conducts training sessions, assists customers in installing TranSlate and provides maintenance updates as standards change.

* * * * * *

TRANSFACT

EDIFACT Translation Software for International Data Interchange

Developed for business and industry by the EDI professionals of

TRANSETTLEMENTS, INC.

Overview

TranSfact is TranSettlements' Electronic Data Interchange software product for the translation of international business messages to and from the EDIFACT syntax and message format structures.

EDIFACT Features Supported

- Compliance checking for conformance to EDIFACT syntax and message design rules.
- Composite data element and element qualifiers using the Trade Data Elements Directory (UNTDED/ISO 7372).
- Variable length control character sets.
- Implicit/explicit segment structures.
- EDIFACT message, functional group, and interchange service segments and controls.
- All international message sets and future versions of EDIFACT standards as developed.

TranSfact Features

- Structured ANSI/COBOL source code provided.
- Translates to/from user defined internal data formats.
- Maintenance support provided with EDIFACT updates, program changes, and enhancements.
- Audit trail and error reports.
- Document print images of message data.
- Processing efficiencies.

Table-Driven Structure Facilitates

- Support of multiple releases of EDIFACT standards.
- Network and/or trading partner transmission requirements.
- Trading partner addition and requirements parameters.
- Data sequencing to application requirements.
- Conversion of element qualifiers to/from internal values.

General Considerations

- Proven TranSettlements' EDI standards translation software structure.
- Operation on a variety of systems including IBM, UNISYS, DEC VAX, HP3000, TANDEM and HONEYWELL hardware.
- TranSettlements' EDI knowledge, commitment, and reliability through sales, development, and support personnel.

Availability

TranSfact will be ready for installation in the third quarter of 1988 for both North American and International EDI users. As EDIFACT standards progress, **TranSfact** will progress.

TranSettlements -- The EDI Professionals

TranSettlements, an Atlanta-based company founded in 1977, has been and continues to be an active participant in EDI standards-setting groups such as the American National Standards Institute (ANSI), Transportation Data Coordinating Committee (TDCC), and others.

The company provides computer-to-computer EDI network services to a growing list of firms and is the leader in providing mainframe software to facilitate the expanding use of EDI technology. TranSettlements' broad experience and in-depth knowledge is made available to clients through consulting services, EDI standards workshops, and seminars.

TranSettlements' customer base includes major national and international companies representing a broad spectrum of industries including automotive, transportation, steel, chemical, pharmaceutical, food, banking, textile, retail, and others.

TRANSETTLEMENTS

If you would like more information on TranSfact or other TranSettlements' EDI products, call or write:

TranSettlements, Inc.
1745 Phoenix Boulevard
Atlanta, Georgia 30349
(404) 996-8109

Hank Lavery, Jr.
President
TRANSETTLEMENTS

Mr. Lavery was named President of Atlanta's TranSettlements this past year, having served as Vice President since January, 1979. TranSettlements, which offers EDI translation software and provides network services, is a subsidiary of Transus, a transportation services company.

Earlier, Mr. Lavery served as Vice President of Information Services with a major motor carrier in the Northeast. He first became involved with the transportation industry in 1966 as a member of a major public accounting firm.

FEDERAL GOVERNMENT EDI INTERTRENDS

Jim Kerrigan

Director
Federal Information Systems and
Services Program

INPUT

Federal EDI Climate

- Market Forces
- Applications
- CALS
- Agency Perspectives
- Vendor Perspectives
- Market Forecast

INPUT

NOTES:

ECON-JK-1

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Market Forces

- Budget Constraints
- Staff Shortages
- Productivity Improvement
- Management/Oversight Mandates
- Amended Paperwork Reduction Act

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Agency Benefits

- Reduce Document Handling
- Eliminate Manual Reentry of Data
- Improve Document Accuracy
- Lower Procurement Costs

. . . Just as for Business

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Inventory Management

- Process Orders Faster
- Reduce Lead Time
- Improve Forecast Accuracy
- Reduce Warehouse Space
- Reduce Stock-on-Hand

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Federal EDI Applications

- Department of Defense
- Treasury Department
- General Services Administration
- Other Agencies
- Leading Candidates

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EDI in Department of Defense

- Commissary Activity Continuing to Grow
- Defense Logistics Agency
  - Paperless Ordering Placement System (POPS)
  - Procurement by Electronic Telecommunication (PET) System
- Military Traffic Management Command
  - Automated Bills of Lading

INPUT

NOTES:

ECON-JK-6, 6a

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EDI in Treasury Department

- IRS—SUPER and SUPERB Expanding Nationwide
- Customs—Automated Broker Interface
- Vendor Express

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Vendor Express

- Begun July 20, 1987
- Limited Volume at Present
- Convert Vendor Payments over Two Years
- Now Contains Invoice Date
- Adding Addenda Record Next April

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EDI at General Services Administration

- Furniture Purchase Order Pilot
- Planning X12 Invoice Pilot
- Automated Federal Supply Schedule

INPUT

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EDI at Other Agencies

- SEC-EDGAR from Pilot to Full Implementation
- Veterans Administration
  - Track Invoices
  - Make Payments
  - Develop Tracking Reports

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Leading EDI Candidates

- Electronic FARs
- Generic Procurement Systems
- Document Distribution
- Standard Procedures Data Dictionary

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Computer-Aided Acquisition and Logistics Systems (CALS)

- Treated in Federal EDI Report
- Enormous Vendor Interest
- Formally Limited to DoD
  - Army
  - Air Force
  - Navy
  - Defense Logistics Agency

INPUT

NOTES:

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CALS Perspectives

- Definition: Interactive Exchange of Standardized Logistics Documents in Digital Form
- Costello: Budget Cuts Increase CALS Acceptance

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CALS - Air Force

- AFTOMS (Formerly ATOS)
- Functional Areas
  - Repository Automation
  - Printing and Publishing
  - Systems Integration
  - Information Processing
  - CAD/CAM
  - Authoring
  - DBMS
  - Maintenance

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CALS - Army

- Active Solicitation
- Originally Supporting LHX
- 11 Individual Projects
- Generic Architecture by CSC

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NOTES:

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CALS - Navy

- EDMICS – Major System to Be Awarded Shortly
- Overall Program
  - 23 Major Projects
  - Categories Similar to Air Force
  - Demonstrations: Lead Weapon Systems Development Programs

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NOTES:

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CALS - DLA

- Logistics Systems Modernization Program
- Using Existing Standards
  - Standardized General Markup Language
  - Initial Graphics Exchange Specifications
- 12 CALS Projects
- 6 Categories

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Agency Perspectives

- Ad-Hoc Adoption of EDI Techniques
- Premature to Standardize
- Draft OMB Policy—Data Collection
- Adapt and Adopt Private-Sector Procedures
- OMB Circular A-130 Encouraging EDI

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NOTES:

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Agency Perspectives—Standards

- DoD Adopts ANSI X.12
- Federal Supply Service Incorporating X.12
- NBS Still Evaluating
- GOSIP

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Software Criteria Ranking

Characteristic	Ranking	
	Agency	Vendor
Ease of Use	1	5
Vendor Maintenance	2	4
Exception Reporting	3	3
Receipt Confirmation	4	2
Ease of Upgrade	5	1

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NOTES:

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Vendor Perspectives

POSITIVE

- Market Opportunities
- Transfer of Commercial Capabilities
- More-Efficient Government

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Advantages to Industry

- Faster Procurement Invoices
- More Accurate Invoices
- Prompt Payment
- Lower Cost to Industry

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Vendor Perspectives

NEGATIVE

- Uncertain Standards Approach
- Possible Security Compromise
- Potential for Unchecked Errors
- More-Efficient Government

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Vendor Prospects

- Network Services
- Software
- Systems Integration
- Hardware Suppliers
- Maintenance

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Vendor Improvements to Products and Services

Suggestion	Rank
Improve Interconnection Capabilities	1
Increase Translation Software Availability	2
Increase On-Line Editing Capabilities	3
Expand E-Mail Capabilities	4
Develop "Error-Free" Communicating Protocol	5

Rank Based on Frequency of Mention by Respondents

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ECON-JK-23, 24

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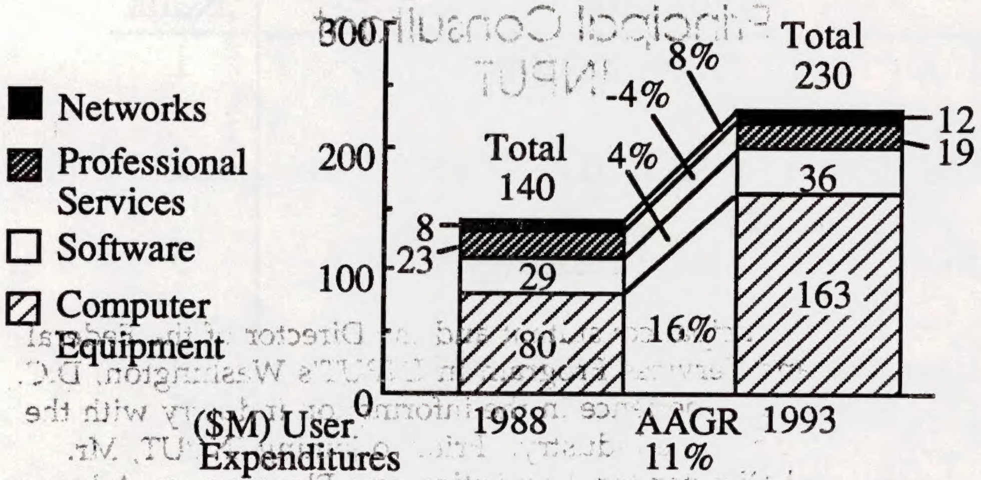
Federal
Electronic Data Interchange Markets



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James F. Kerrigan
Principal Consultant
INPUT

James F. Kerrigan is a principal consultant and the Director of the Federal Information Systems and Services Program in INPUT's Washington, D.C. office. He has 21 years of experience in the information industry with the federal government and private industry. Prior to joining INPUT, Mr. Kerrigan was Technical Director for Acquisition and Planning for Advanced Technology, Inc., where he participated in proposal efforts in support of federal acquisition activities. He was also the senior computer executive with the Treasury Department. Jim's background also includes conducting conferences in information systems planning.

Mr. Kerrigan majored in mathematics at Catholic University, Washington, D.C. He holds an MS (ADP Management) from American University.